

PITTSBURGH, PA DISTRICT

This District comprises part of eastern Ohio, western Pennsylvania, southwestern New York, northern West Virginia, and northwestern Maryland embraced in drainage basin of Ohio

River and Tributaries above mile 127 (below Pittsburgh), immediately upstream from New Martinsville, West Virginia.

IMPROVEMENTS

Navigation - Locks and Dams.....Page

1. Allegheny River, PA.....	18-2
2. Construction of Locks and Dams, Ohio River.....	18-2
3. Monongahela River, PA and WV.....	18-2
4. Open-Channel Work, Ohio River.....	18-3
5. Tygart Lake, WV.....	18-3
6. Other authorized navigation projects.....	18-4

Flood Control - Local Protection

7. Elkins, WV.....	18-4
8. Johnstown, PA.....	18-4
9. Punxsutawney, Ohio River Basin, PA.....	18-4
10. Saw Mill Run, Pittsburgh, PA.....	18-5
11. South Central, PA Env Improvement Program.....	18-5
12. West Virginia and Pennsylvania Flood Control.....	18-6

Flood Control - Reservoirs

13. Berlin Lake, Ohio River Basin, OH.....	18-6
14. Conemaugh River Lake, Ohio River Basin, PA.....	18-7
15. Crooked Creek Lake, Ohio River Basin, PA.....	18-7
16. East Branch, Clarion Riv Lk, Ohio River Basin, PA.....	18-7
17. Kinzua Dam and Allegheny Reservoir, Ohio River Basin, PA and NY.	18-8
18. Lower Girard Dam, OH.....	18-8
19. Loyalhanna Lake, Ohio River Basin, PA.....	18-8
20. Mahoning Creek Lake, Ohio River Basin, PA.....	18-9
21. Michael J. Kirwan Dam and Reservoir, Ohio River Basin, OH.....	18-9
22. Mosquito Creek Lake, Ohio River Basin, OH.....	18-9
23. Ohio River Basin (Pittsburgh District).....	18-9
24. Shenango River Lake, Ohio River Basin, PA and OH.....	18-10
25. Stonewall Jackson Lake, Ohio River Basin, WV.....	18-10
26. Tionesta Lake, Ohio River Basin, PA.....	18-11

27. Union City Dam, Ohio River Basin, PA.....	18-11
28. Woodcock Creek Lake, Ohio River Basin, PA.....	18-11
29. Youghiogheny River Lake, Ohio River Basin, PA and MD.....	18-12
30. Inspection of Completed Flood Control Projects.....	18-12
31. Other Authorized Flood Control Projects.....	18-12
32. Flood Control Work under Special Authorization.....	18-12

General Investigations

33. Surveys.....	18-13
34. Collection and Study of Basic Data... ..	18-13
35. Preconstruction, Engineering and Design.....	18-13
36. Research and development.....	18-13
37. Project Modifications for Improvement of Environment	18-13
38. Aquatic Ecosystem Restoration.....	18-13

Tables

Table 18-A Cost & Financial Statement.....	18-14
Table 18-B Authorizing Legislation.....	18-19
Table 18-C Other Authorized Navigation Projects.....	18-24
Table 18-D Not Applicable	
Table 18-E Other Authorized Flood Control Projects.....	18-25
Table 18-F Not Applicable	
Table 18-G Deauthorized Projects.....	18-26
Table 18-H Allegheny River Statistics.....	18-27
Table 18-I Monongahela River Statistics.....	18-28
Table 18-J Monongahela River Total Costs.....	18-30
Table 18-K Ohio River Basin Reservoirs.....	18-30
Table 18-L Inspection of Completed Flood Control Projects.....	18-31
Table 18-M Flood Control Work Under Special Special Authorization.....	18-32

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

Navigation - Locks and Dams

1. ALLEGHENY RIVER, PA

Location. The Allegheny River is 321 miles long. It rises in northern Pennsylvania, flows northwestward into New York, thence generally southwestward to Pittsburgh, PA, where it joins with Monongahela River to form the Ohio. (See Geological Survey Charts for western Pennsylvania and southwestern New York.)

Existing project. The project consists of eight locks and dams to afford slack-water navigation for a length of 72 miles from Pittsburgh, PA to above East Brady, PA. Controlling depth through canalized portion is 9 feet at normal pool level. Channel width varies from a minimum of 200 feet to full width of river at mouth. Existing project is complete, the last lock, No. 9, was placed in service in 1938. All locks and dams are in fair condition. Navigation channel has been widened at certain points and, in general, maintained to project depth, thus affording adequate depth for passage of commercial tows.

Local cooperation. Fully complied with.

Terminal facilities. City of Pittsburgh constructed a modern wharf for river freight. There are numerous privately maintained terminals and docks, consisting of tipples, various types of hoists, chutes, and pipelines for use in loading and unloading coal, stone, sand, gravel, petroleum products, steel products, and other commodities. Transshipment of freight between river and railroads is handled at privately owned river-to-rail terminals. Existing private terminals are adequate for shipments and receipt in Pittsburgh District of type of commerce now in existence.

Operations & Maintenance, General. During FY 01 a major maintenance contract as well as major supply lock operating equipment contracts were completed; Electrical and Mechanical Rehabilitation and Concrete Repairs at Lock 5 at a base cost of \$3,983,632 was completed at a final cost of \$4,142,398; and the Supply Operating Equipment at a base cost of \$919,980 was completed at a final cost of \$910,607.

2. CONSTRUCTION OF LOCKS AND DAMS, OHIO RIVER

See this heading under Ohio River portion.

3. MONONGAHELA RIVER, PA AND WV

Location. Formed by junction of Tygart and West Fork Rivers about 1 mile south of Fairmont, WV, and flows northerly for 128.7 miles to its junction with Allegheny River, forming Ohio River at Pittsburgh, PA (See Geological Survey Charts for southwestern Pennsylvania and northern West Virginia.)

Previous project. For details see Annual Report for 1963, page 1070.

Existing project. Provides for improvement of river by 9 locks and dams to afford slack-water navigation for its entire length from Pittsburgh to above Fairmont, WV. Original locks and dams 7, 8 and 9 were replaced by new locks and dams 7 and 8 in 1925. Increased traffic necessitated enlargement and improvement of locks and dams 1 to 6 between Pittsburgh and Rices Landing, PA, by building two parallel chambers and fixed concrete dams during 1905 and 1932. Locks and dam 1 were eliminated in 1938 by raising Emsworth Dam, Ohio River. Reconstruction of lock 2 was completed in 1953 to provide two modern navigation chambers. The existing locks and dam 2 were originally completed in 1907; major modifications were made in 1923 and 1924, and in 1926 the upper guard and guide

walls were extended. Construction of Maxwell locks and dam and the reconstruction of dam 4 have allowed for removal of obsolete locks and dams 5 and 6. Small and antiquated original locks and dams 10 to 15, inclusive, have been replaced by three modern structures. Morgantown lock and dam, initial step in replacement program, was completed in 1950 replacing locks and dams 10 and 11. Hildebrand lock and dam, next upstream, was completed in 1959 replacing locks and dams 12 and 13. Raising crest of dam 8 was also completed in 1959 as part of upper river improvement and eliminates restricted depth in upper reach of pool. Opekiska lock and dam was completed in 1967 replacing locks and dams 14 and 15. Completion of this link in upper river replacement program provides for entire river length of minimum channel depth of 9 feet, varying in width from a minimum of 250 feet to practically full width at mouth.

Locks and dam 3 showed advanced stages of deterioration and, because of its strategic location and its importance to industry throughout the Greater Pittsburgh area and the nation, emergency remedial work had to be done in 1977. Major rehabilitation of locks and dam 3 was completed on Oct. 27, 1980.

The Water Resources Development Act of 1986 authorized the replacement of Lock and Dam 7 with Grays Landing Lock and Dam and the construction of a new lock landward of the existing lock at Lock and Dam 8 (renamed Point Marion Lock and Dam). In accordance with the provisions of this act, 50% of the total cost of construction for the Grays Landing and Point Marion projects was derived from the Inland Waterways Trust Fund. Construction of a new lock at Point Marion was completed and put into service in December 1993. Construction of a new lock at Grays Landing was completed and put into service in May 1993. Construction of the dam at Grays Landing was completed in December 1995.

Local cooperation. None required.

Terminal facilities. City of Pittsburgh constructed a modern wharf for freight. Boat landings are maintained by some municipalities along the river. A large number of tipples at mines and various types of hoists at manufacturing plants and sand and gravel supply companies are maintained for private use in loading and unloading coal, coke, billets, steel products, sand, gravel, and other commodities. These terminals and docks are not available for general commerce. A number of docks and pipelines are also privately maintained for petroleum and acid products. Marine ways are maintained by some of the larger industries. These are also several terminals for rail-to-river and river-to-rail transfer. Facilities are considered adequate for existing commerce.

Operations during fiscal year. New Work: Construction of the new Grays Landing dam was completed in December 1995 at an approximate cost of \$25,000,000. Construction of the lock was completed in May, 1993 at a contract cost of approximately \$80,000,000. Removal of the old fixed crest dam and river lock wall at Lock and Dam 7 was completed in FY 96 at a cost of \$2,800,000. Work continues on cultural resources and the acquisition of real estate for the remainder of the project. The present project consists of 84 acres of fee land and 403.3 acres of easement. The estimated total cost of the project, which is scheduled to be complete in September 2000, is \$181,000,000.

Construction of the new lock for the Point Marion Project was completed in December, 1993 at a cost of \$78,800,000.

Land acquired for the project consists of 58 acres of fee land and 77.4 acres of easement. The estimated total cost of the Point Marion project is \$111,700,000. Approximately \$300,000

PITTSBURGH, PA, DISTRICT

of closeout work remains to be completed and two outstanding contractor claims must be resolved.

The Water Resources Development Act of 1992 authorized the District to proceed with navigation improvements on the Lower Monongahela River. The project included replacement of the fixed crest dam at Locks and Dam 2 with a gated dam, raising the existing Pool 2 by 5 feet; elimination of Locks and Dam 3, lowering the existing Pool 3 by 3.2 feet; and the construction of twin 84' x 720' locks at Locks and Dam 4. The changes in pool elevations will adversely affect numerous municipally-owned facilities, which the Corps will adjust at project cost.

The total estimated fully funded cost of the project is \$705 M, consisting of \$352.5 M from Construction, General Appropriations from the US Treasury and \$352.5 M from the Inland Waterways Trust Fund. Preconstruction, Engineering and Design activities were initiated in January 1992 and were concluded in September 1994. The FY 1995 Energy and Water Development Appropriation Act provided \$8 M for the project, of which \$4.1 M was in the Construction, General Appropriation, which allowed construction to begin, consisting of modifications to the Locks 2 auxiliary chamber floodway bulkhead; this work is complete. In February 1996, a \$606 K contract was awarded for the procurement of 750 tons of PS31 sheet pile for the renovation and extension of the Locks 2 Upper Guardwall. In April 1996, a \$3.4 M contract was awarded for this upper guardwall work; it was completed in November 1997. The FY 1998 Appropriations Act contained \$12.7 M for the project, which allowed for the award of the construction contract for new abutments for the new gated Braddock Dam. This \$13 M contract to Brayman Construction began in March 1998. The FY 1999 Appropriation of \$26.5 M allowed for the timely completion of the abutments construction and for the award of the second and main contract for the in-the-wet construction of the new Braddock Dam. On 22 December 1998, the District issued a Request for Proposal for the construction of the new Braddock Dam. On 1 July 1999, the District awarded a \$107 M contract to the Joint Venture of J.A. Jones Construction Company and Traylor Bros., Inc. to construct the new Braddock Dam. The Notice to Proceed was issued on 30 July 1999, and construction is currently proceeding on the base of the dam, which is being constructed in two large segments at a remote 30-acre fabrication site at Leetsdale Industrial Park along the Ohio River. In May 2000, a contract for dredging Pool 3 between River Miles 40-41 was awarded to GASA, Inc. for \$6.4 M. This phase of dredging is scheduled to be completed in March 2001. In June 2000, the District awarded a \$5.2 M contract to Alan Stone Co., Inc. to construct submerged upstream training dikes for the new Charleroi Locks. Completion of this work is scheduled for March 2001. As with FY 2000, the FY 2001 Appropriation will continue to fund the Braddock Dam construction, the dredging of Pool 3, the design and construction phases of the federally funded relocations effort, and the design of the new Charleroi Locks. The overall Lower Mon project is scheduled for completion in FY 2008.

Operations and Maintenance, General. Major work accomplished by Government hired labor was the Renovation of the Land Wall Emptying Valve at Lock 4 (\$536,105); the renovation of the River Wall Filling Valve at Maxwell (\$685,635); the replacement of the River Wall Filling Valve and River Wall Emptying Valve at Lock 2 (\$486,463); the rehab of the Maxwell Tainter Valve at PEWARS (\$111,828). Work accomplished by contracts included an Indefinite Delivery Contract to Fabricate Tainter Valve for Opekiska (\$168,000); an Indefinite Delivery Contract to Fabricate Butterfly Valves for

the Mon River (177,495); a contract award for Stream Bank Protection at Point Marion (\$1,760,624); and contract award to Install Auxiliary Crane at Morgantown & Hildebrand (\$617,464).

4. OPEN-CHANNEL WORK, OHIO RIVER

See this heading under Ohio River portion.

5. TYGART LAKE, WV

Location. Tygart Lake is located on the Tygart River in Taylor and Barbour Counties, northcentral WV. The lake is approximately 26 road miles due east of Clarksburg, WV and 30 road miles south of Morgantown. The dam is situated 22.7 river miles above the mouth of the Tygart River at Fairmont, or 2.25 miles upstream from Grafton, WV, and about 78 miles south of Pittsburgh, PA. (See Geological Survey Charts for Fairmont, Thornton, and Belington, WV.)

Existing project. A reservoir for low water regulation and flood control. Dam is concrete gravity type with an uncontrolled center spillway flanked by abutment sections joining valley sides. Project was authorized by Public Works Administration January 11, 1934, and adopted by 1935 River and Harbor Act. For further project description see Annual Report for 1962. Authorized project is complete. Reservoir is in operation for low water control in Monongahela River and for purpose of flood protection in Monongahela and Ohio Valleys. Construction of dam was started in 1935 and placed in operation in 1938. Present project lands consist of 2,662.9 acres in fee, flowage easements over 1,216.9 acres and 1,731.9 acres of other easements.

Local cooperation. The State of West Virginia has assumed responsibility for the development and operation of hunting and fishing areas as well as the Tygart Lake State Park. Controlled releases for downstream navigation and recreation are also coordinated with others to the extent feasible. No local cooperation is required at completed project; however, future recreational developments are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965. A cost-sharing agreement was executed with the West Virginia Department of Recreation in May 1981.

Licenses. The Federal Energy Regulatory Commission granted a license to the City of Grafton for construction of a non-Federal hydropower facility at this project (FERC license 7307). Details of the design and other issues are still being finalized. The deadline for the start of project construction expired on 15 Apr 1995; however, the developer was granted an extension which expires 1 Mar 2004.

Operations during fiscal year. Operations and Maintenance, General: Reservoir was operated for benefit of flood control and low water regulation, as required, and project structures were operated and maintained in a serviceable condition throughout the year. Estimated flood control benefits achieved by this project through September 30, 2001 revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were \$1,071,546,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued. This work was limited in scope as the State of West Virginia has jurisdiction over most of the recreation in the reservoir area.

Tygart Dam was selected as a Dam Safety Assurance Project in March 1996. The Evaluation Report was initiated in March

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

1994 to address spillway capacity and structural stability in relation to the probable maximum flood event. Findings of the report concluded that under present conditions, the probable maximum flood would overtop the dam and cause failure. The report recommends protecting the dam from failure to include downstream erosion protection and stilling basin modifications. The Design Memorandum was completed in September 1998 and Plans and Specifications were completed in July 1999. The construction contract was advertised in August 1999 and awarded to Joseph B. Fay Co. on 28 September 1999 for \$5,628,929. The Notice to Proceed was issued in October 1999 and the scheduled work was substantially completed in October 2001. The project features include construction of a new road to provide access to the left bank abutment of the dam, new concrete channels consisting of a concrete wall (end sill) and concrete slope paving on the downstream side of the dam, new concrete lagging retaining walls on the left and right banks of the dam, modification of the existing parapet wall, and minor repairs to the roadway decking. Work remaining to be completed in FY 02 consists of the installation of security fencing around the newly completed construction. The \$182,201 A/E contract for the E&D of a replacement bulkhead hoist and slide gate rehab was completed in FY 01. This design will be combined with an in-house design effort to rewire the project and upgrade the hydraulic system. The combined design effort will be completed in FY 02.

6. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 18-C on other authorized navigation projects.

Flood Control - Local Protection

7. ELKINS, WV

Location. On Tygart River in north-central Randolph County, WV, about 155 miles south of Pittsburgh, PA. It is at downstream end of a long, broad reach of upper Tygart Valley, about 75 miles above mouth of river. (See Geological Survey Chart for Elkins, WV).

Existing project. Provides flood protection by diverting flood discharges from upstream arm of loop of natural river channel into an artificial cutoff channel, thereby bypassing City of Elkins. Improvement is designed to accommodate discharges equivalent to maximum flood of reasonable expectancy. Project construction was started in May 1946 and completed in May 1949. Completed works, except that portion of channel maintained by Federal Government, has been operated and maintained by City of Elkins since March 31, 1949. Present project lands consist of 32.04 acres in fee and 526.01 acres in easements. Project was authorized by 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1222. Federal cost of completed project was \$1,772,627; estimated non-Federal cost for lands, easements, and rights-of-way was \$40,000.

Local cooperation. Fully complied with.

Operations during fiscal year. Operation and maintenance, general: Routine investigations and inspections were made. Project was last inspected in October 1997. Flood damages prevented through FY 01 were estimated to be \$19,669,000.

8. JOHNSTOWN, PA

Location. Project is located in southwestern Cambria County, PA, about 58 miles east of Pittsburgh, PA. It is in a deep and comparatively narrow valley at junction of Stoney Creek and Little Conemaugh River, which unite to form Conemaugh River. (See Geological Survey Chart for

Johnstown, PA.)

Existing project. Provides for increased channel capacity by enlarging and realigning channels and protecting banks with concrete pavement. Improvement designed to accommodate discharges equivalent to those of March 1936 flood, maximum natural flow of record, minimum of overbank flow and to practically eliminate damages therefrom. Project construction began in August 1938 and was completed in November 1943. Footer protection for Unit 4 was completed in November 1949. Present project lands consist of easements over 199 acres. Project was authorized by Flood Control Acts of 1936 and 1937. For further project description see Annual Report for 1962, page 1215.

Local cooperation. The rules of local cooperation for the rehabilitation of the existing project are governed by the FY 91 Energy and Water Resources Appropriations Act. Pursuant to this Act, the City of Johnstown will have a limited role in securing the needed rights of access to non-federal structures included in the line of protection and will hold and save the United States from damages due to construction or operation and maintenance of the work on the non-federal structures, except for damages due to the fault or negligence of the United States or its contractors.

Operations during fiscal year. Operations and maintenance, general: The FY 1991 Energy and Water Resources Development Appropriations Act authorized and directed the Corps to undertake a major rehabilitation of the existing project. The Project Design Memorandum was approved in June 1995. The major rehabilitation work is to be accomplished under the Construction, General appropriation at an estimate cost of \$32.5 million. Contract plans and specifications were initiated in July 1995. Four of seven construction contracts were awarded through September 2001. The fifth of seven construction contracts could be awarded in June 2002. The sixth of seventh contracts are dependant on Operations & Maintenance funds availability. The CG project is scheduled to be physically complete in Sep 2003. The Construction, General work consists of the repair of 54 existing wall sections, slope paving and replacement of balustrade (safety) wall. Also included in the major rehabilitation is all the necessary Operation and Maintenance funded work. The O&M work estimated to cost \$8.3 M consists of concrete spill repairs, slope paving joint repairs, sediment removal and miscellaneous repairs. Through FY 01 \$28.5 M CG and \$4.4 M O&M has been expended.

Flood damages prevented by the project through September 30, 2001 were estimated to be \$802,967,000.

9. PUNXSUTAWNEY, PA

Location. Borough of Punxsutawney is on Mahoning Creek in Jefferson County, PA, about 85 miles northeast of Pittsburgh, PA. It is on a comparatively wide, alluvial flood plain about 52 miles above mouth of stream and 30 miles above Mahoning Creek flood control dam. (See Geological Survey Charts for Punxsutawney and Smicksburg, PA.)

Existing project. Provides flood protection by channel enlargement, dikes, and walls. Improvement is designed to accommodate discharges 20% greater than that of maximum flood of record. Construction was accomplished by construction of four units. Construction started in May 1946 and was completed in June 1950. Present project lands consist of perpetual easements over 72.6 acres. Completed works, except that portion of channel maintained by the Federal Government have been operated and maintained by Borough of Punxsutawney since July 31, 1950. Project was authorized by

PITTSBURGH, PA, DISTRICT

1938 Flood Control Act. For further project description see Annual Report for 1962, page 1209.

Local cooperation. Fully complied with.

Operations during fiscal year. Operations and maintenance, general. Operation Activities continued and routine investigations and inspections were made. Survey cross sections were taken at Unit 1 in preparation of sediment removal. Total flood damages prevented through FY 01 were estimated to be \$72,002,000.

10. SAW MILL RUN, PITTSBURGH, PA

Location: The project is located within the City of Pittsburgh, Allegheny County, at Ohio River Mile 0.7 and traverses upstream from the mouth of Saw Mill Run approximately 4,700 L.F.

Existing Project: The proposed project was authorized in WRDA of 1986 in accordance with the Chief of Engineers report dated 30 January 1978. The WRDA 1996 increased the project estimate to \$12,780,000, the current project estimate in 1994 dollars. In FY 97 this project was included in the FY 97 appropriations as a new construction start.

Local Cooperation: The City of Pittsburgh is the local sponsor for this project and is responsible for real estate acquisition and relocation design and construction. The project will be cost shared 75% Federal and 25% non-federal in accordance with the requirements of WRDA 86.

Operations during fiscal year: In October 1997, a Project Cooperation Agreement was executed with the City of Pittsburgh. In June 1998, the District executed a Memorandum of Agreement (MOA) for the purpose of allowing the District to acquire the real estate and complete relocation work on behalf of the city. With the MOA executed and the funds for this effort transferred to the District in July 1998, real estate acquisition was initiated, and was completed in Nov 2000. In FY 99, the District continued with the preparation of Plans and Specifications for the project. Plans and Specifications was completed in March 2000 and the construction contract was awarded in Nov 2000. The contract was awarded to Carmen Paliotta Contracting in April 2001 for \$12,881,875. The construction contract is currently 15% complete. The completion date for the contract is Feb 2003. Once the project is completed, it will be turned over to the City of Pittsburgh for operation and maintenance responsibilities.

11. SOUTH CENTRAL, PA

ENVIRONMENT IMPROVEMENT PROGRAM

Location. Projects under this program in the Pittsburgh District are located in the South Central PA counties of Allegheny, Armstrong, Cambria, Fayette, Indiana, Somerset and Westmoreland.

Existing Projects. Section 313 authorizes the Secretary of the Army to establish a pilot program to provide design and construction assistance to non-Federal interests in south central Pennsylvania. The following projects were authorized under Section 313 of the Water Resources Development Act of 1992. The Forest Hills Municipal Authority (FHMA) project consists of the fast track planning, design and construction of a wastewater treatment plant, pump substations, interceptor lines and collection systems. The treatment system provides service to four boroughs and five townships. The total project cost is estimated at \$40,300,000 (\$13,150,000 Federal cost, \$27,150,000 non-Federal cost). The Burrell Township Sanitary Authority project consists of the installation of gravity sanitary

sewers and pump stations. The total project cost is estimated at \$4,700,000 (\$1,750,000 Federal cost, \$2,950,000 non-Federal cost). The Blacklick Valley Municipal Authority project consists of the installation of potable water transmission and distribution lines. The total project cost is estimated at \$2,750,000 (\$1,450,000 Federal cost, \$1,300,000 non-Federal cost). The Redstone Township Sewer Authority project consists of the design of a wastewater treatment plant and conveyance system. The total project cost is estimated at \$626,000 (\$500,000 Federal cost, \$126,000 non-Federal cost). The Westmoreland County Industrial Development Corporation project consists of waterline and sanitary sewer extensions. The total project cost is estimated at \$700,000 (\$450,000 Federal cost, \$250,000 non-Federal cost). The Indiana County Municipal Services Authority (ICMSA) will be the sponsor for the White Township project which consists of construction of a wastewater treatment plant, interceptor sewer, sanitary sewer extension and upgrade of an existing pump station. The total project cost is estimated at \$5,720,000 (\$1,000,000 Federal cost, \$4,720,000 non-Federal cost). The East Huntingdon Township project consists of construction of a new 250,000 GPD sewage treatment plant, interceptor and collector sewers. The total project cost is estimated at \$5,900,000 (\$4,200,000 Federal cost, \$1,700,000 non-Federal cost). The Somerset County Economic Development Council project consists of upgrading the infrastructure and utilities backbone of the Somerset Industrial Park Facility. The total project cost is estimated at \$550,000 (\$380,000 Federal cost, \$170,000 non-Federal cost). The Redevelopment Authority of the County of Westmoreland project consists of providing an additional 50,000 GPD sewage treatment plant, extending sewer and waterlines and providing a water booster pump station. The total project cost is estimated at \$650,000 (\$375,000 Federal cost, \$275,000 non-Federal cost). The Municipal Authority of Portage will be the sponsor for the Cassandra Borough project which consists of replacement of the Ben's Creek interconnect line and the replacement of the Borough of Cassandra's water system. The total project cost is estimated at \$1,400,000 (\$1,000,000 Federal cost, \$400,000 non-Federal cost). The Municipal Authority of the Borough of Cresson project consists of eliminating the raw sewage by-pass at the main pump station and upgrade and expand the existing treatment plant. The total project cost is estimated at \$7,100,000 (\$4,500,000 Federal cost, \$2,600,000 non-Federal cost). The Ligonier Borough Council project consists of replacement of the vitrified clay pipe collection system. The total project cost is estimated at \$800,000 (\$720,000 Federal cost, \$80,000 non-Federal cost). The Cambria Somerset Authority project consists of the rehabilitation of deteriorating sections of the pipeline which feeds commercial industries in and around the city of Johnstown, Pa. The total project cost is estimated at \$334,380 (\$250,785 Federal cost, \$83,595 non-Federal cost).

The Armstrong County project consists of the separation of the combined sewer outflow in the town of New Bethlehem. The total project cost is estimated at \$960,000 (\$463,000 Federal cost, \$497,000 non-Federal cost). The Ohiopyle Borough project consists of rehabilitating and expanding the existing treatment plant to meet higher demands. The total project cost is estimated at \$600,000 (\$200,000 Federal cost, \$400,000 non-Federal cost). The Georges Creek Municipal Authority project consists of the construction of a sewage treatment plant and collection system. The total project cost is estimated at \$4,000,000 (\$2,000,000 Federal costs and \$2,000,000 non-Federal costs). The Kittanning-Plumcreek Water Authority project involves the design of 62,000 linear feet of waterline along route 422 from near Kittanning to the small village of Whitesburg, with several spurs along certain

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

populated township roads which branch off route 422. Also required is a booster pumping station and a ±250,000 gallon water storage tank. The total project cost is \$280,000 (\$210,000 Federal costs and \$70,000 non-Federal costs). The Indiana County Municipal Services Authority has identified Armagh, Heilwood and Marion Center as areas in need of sanitary collection systems. The total estimated project costs are \$6,500,000 (\$1,500,000 Federal costs and \$5,000,000 non-Federal costs). The Energy and Water Development Appropriations Act of 1999 specifically cited projects in Penn Hills, Shaler Township and Scott Township at a Federal cost of \$500,000 for the design of much needed improvements in these areas. Additional projects identified for FY01 funding include New Bethlehem Phase 2, Whitesburg construction, Blacklick sewers, Quemahoning phase 2, National Pike Water Authority design, Fayette Business Park, Twin Lakes and Dunbar design only.

Local Cooperation. Legislation requires the project to be cost shared at no more than 75% Federal funds and a minimum of 25% non-Federal funds. Project Cooperation Agreements are executed between the Corps of Engineers and the Non-Federal Sponsors. Sanitary Authority is required prior to design and construction efforts. Operation and maintenance of the project will be at 100% non-Federal cost.

Operations during fiscal year. Construction PCA's were executed for Armagh, Heilwood and Marion Center, Cassandra, Cresson, Ligonier, New Bethlehem, Ohio, Smithfield and Westmoreland Business and Research Park projects on 18 September 2000, 18 September 2000, 21 September 2000, 24 July 2000, 24 July 2000, 24 July 2000, 27 September 2000 and 24 July 2000 respectively. Design PCA's were executed for Armagh, Heilwood and Marion Center, Cresson, New Bethlehem, Ohio, Penn Hills, Quemahoning Phase 1, Scott, Shaler, Smithfield and Whitesburg projects on 10 November 1999, 9 March 2000, 9 February 2000, 20 March 2000, 26 September 2000, 9 August 2000, 20 March 2000, 4 April 2000 and 5 September 2000 respectively. Designs for the efforts are all underway and between 25% and 100% complete. PCA's will be submitted for the following projects in FY01: Patton design and construction, Whitesburg construction, New Bethlehem design and construction, Blacklick design and construction, Quemahoning Phase 2 design and construction, National Pike design, Fayette Business Park design and construction, Twin Lakes design and construction, and Dunbar design.

12. WEST VIRGINIA AND PENNSYLVANIA FLOOD CONTROL

Location. Project under this program in the Pittsburgh District are located in the Tygart River Basin in West Virginia and the lower Allegheny River in Pennsylvania. The priority (named in the legislation) communities located in West Virginia are Phillippi and Belington. The priority communities in Pennsylvania are New Bethlehem, Clymer, Benson, Hooversville, Meyersdale, Connellsville and Dubois. Section 581 of the Water Resources Development Act of 1996 authorizes the Secretary of the Army to design and construct flood control measures for these priority communities at a level of protection sufficient to prevent future losses from flooding equivalent to that which occurred in January 1996, but at least no less than a 100 year level of protection. Project development will consist of developing a least cost plan including structural and/or non-structural elements, to provide the authorized level of protection without guard to a benefit/cost ratio.

Local Cooperation. The reconnaissance phase is 100%

Federally funded. The Detailed Project Report, Plans and Specifications and Construction phases are cost shared at 75% Federal funds and 25% Non-Federal funds. A Design Agreement is required to design efforts and a Project Cooperation Agreement (PCA) is required prior to the project construction. In September 1998, Director of Civil Works, HQUSACE, approved the District's request for a waiver of the up front cost sharing for the design portion of the West Virginia projects. The basis for the approval of the waiver was that the priority communities in West Virginia qualified for a reduced cost share (5%) based on the ability to pay provisions on Section 103(m) of the Water Resources Development Act of 1986.

Operation during fiscal year. In Pennsylvania, the General Management Plans for the seven communities were completed in January 1999. Project Study Plans (PSP) for the seven communities was completed in July 2000. Design Agreements are being prepared and current plans call for the execution of these agreements pending the local sponsors' ability to obtain the Non-Federal cost share. Design Agreements were executed for the Meyersdale and Hooversville projects in FY01. DPR for Meyersdale will be complete in FY 02 and Hooversville in FY 03.

In West Virginia, the PSPs for the two communities were completed in September of 1998 and approved in November 1998. Since no Design Agreement is required for these communities, work on the DPRs started in December 1998. The DPRs for the two communities remain under development. Least cost plans and Locally Preferred Plans for both communities have been developed. The DPRs are currently scheduled for completion in FY02. A decision to implement a Flood Warning System for the two communities as the first phase of the projects was made in September 1999. An interim DPR for the Flood Warning System was submitted in November 2001. Implementation of the Flood Warning System will follow execution of the Project Cooperation Agreement and is currently scheduled for completion in FY02.

Flood Control - Reservoirs 13. BERLIN LAKE, OH

Location. Dam is on Mahoning River about 73 miles above its confluence with Shenango River. It is about 10 miles above existing Milton Reservoir Dam and 35 miles upstream from Warren, Ohio. Reservoir is in Portage, Mahoning and Stark Counties, OH. (See Geological Survey charts for Warren, Ravenna, and Alliance, OH.)

Existing project. A reservoir for flood control and water supply. Dam consists of a partially controlled, concrete gravity, center spillway flanked by rolled-earthfill abutment sections joining valley sides. Authorized project is complete and in operation for flood control and low water regulation purposes in industrialized Mahoning Valley below. Construction of dam was started in January 1942 and completed in June 1943. Present project lands consists of 6,885.3 acres in fee and 1,098.7 acres in easements. For further project description, see Annual Report for 1962, page 1233.

Local cooperation. None required at completed project; however, future recreational developments are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. Operations and maintenance, general: Reservoir was operated as required and necessary repairs were made to structures and appurtenances. A contract to replace three 36 inch gate valves with six 36 inch ball valves along with a new construction for two 36 inch ring

PITTSBURGH, PA, DISTRICT

jets with two emergency 36 inch back up ball valves was started in June 2001 costing approximately \$4,000,000. Incorporated into this contract for the dam structure was a new generator, service crane, new windows, new exterior doors and electrical upgrades to the dam structure and crest gates. A performance base indefinite delivery contract for gate attendants, janitorial, grass mowing and trash pick up started in June 2001 for a total cost of \$167,000 for FY01. Estimate flood control benefits achieved in FY01 were \$974,000 total benefits through September 2001, revised to reflect damages prevented downstream districts as well as Pittsburgh District, were \$494,456,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operations and maintenance of public use facilities continued.

14. CONEMAUGH RIVER LAKE, PA

Location. Dam is on Conemaugh River in Indiana and Westmoreland Counties, PA, 7.5 miles above junction of Conemaugh River and Loyalhanna Creek, which form the head of the Kiskiminetas River. It is about 2 miles northeast of Tunnelton, PA, and about 42 miles east of Pittsburgh, PA. Reservoir is in Westmoreland and Indiana Counties, PA. (See Geological Survey Charts for Latrobe, New Florence, and Elders Ridge, PA.)

Existing Project. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides and an earth embankment ending in right abutment. Authorized project is complete. Reservoir system is designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Present project lands consist of 7608.7 acres in fee and 522.8 acres in easements. Project authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1217.

Local cooperation. None required by law.

Licenses. A non-Federal hydropower project utilizing Conemaugh Lake was constructed downstream of the dam under FERC Licenses 3207. The 15-megawatt project began commercial operation on February 6, 1989. It is owned by National Renewable Resources, Inc.

Operations during fiscal year. Operation and maintenance, general: Reservoir was operated for benefit of flood control as required, and necessary repairs were made to structures and appurtenances. The multi-year rehabilitation of the dam electrical system by in-house personnel is 75% completed. The Multi-year rehabilitation of the dam electrical system by in-house personnel is 95% completed. A real estate license and cooperating association agreement with the Conemaugh Valley Conservancy for the construction of a 3.5 mile hiking/biking trail were signed in FY-2000, and construction will be completed in June 2002. A one-year Initial Appraisal (study) conducted by the Pittsburgh District at the cost of \$20,000 requested from the Borough of Saltsburg, PA to have weekend water releases from Conemaugh Dam and Loyalhanna Dam for downstream recreation. Estimated flood control benefits achieved by this reservoir for FY 01 were \$82,000; total flood control benefits through September 2001, revised to reflect damages prevented in downstream districts as well as Pittsburgh District were \$1,523,494,00. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities were continued. A real estate license and a cooperating association agreement with the Conemaugh

Valley Conservancy for construction of a 3.5 mile hiking /biking trail were signed in FY 00.

15. CROOKED CREEK LAKE, PA

Location. Dam is on Crooked Creek 6.7 miles above junction of creek with Allegheny River near Ford City, PA, and about 32 miles northeast of Pittsburgh, PA. (See Geological Survey Charts for Freeport and Elders Ridge, PA.)

Existing project. A flood control reservoir dam of earth-fill type with separate uncontrolled saddle spillway and tunnel outlet works. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in March 1938 and completed in October 1940. Present project lands consist of 2,561.7 acres in fee and 100.22 acres in easements. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1213.

Local cooperation. None required by law.

Operations during fiscal year. Operations and maintenance, general: Reservoir was operated for benefit of flood control, as required, and necessary repairs were made to structures and appurtenances. In-house staff constructed a picnic pavilion, and upgraded 5 campsites with electric and water hookups at the Bush recreation Area. The Pennsylvania Department of Transportation created a 7 acres of wetlands mitigation site and a constructed a car top boat access at the Sanderson Area as part of mitigation for federal wetland and recreational property taken to widen PA State Route 22. In August of 2001, The District Commander signed a lease with the Armstrong Education Trust for the operation and maintenance of the Environmental Learning Center. In 2001, Gate #3 was removed and refurbished by the District's Repair Party. Lease DACW59-1-86-0013 with Manor Township for the Armstrong Horse Park remained in effect. Congress has mandated the transfer of 97.48 acres of free land to Manor Township for operation of the Armstrong Horse Park. Estimated flood control benefits achieved by this reservoir for FY 01 were \$82,000; total benefits achieved through September 30, 2001, revised to reflect damages prevented in down stream districts as well as Pittsburgh District, were estimated at \$1,523,494,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued.

16. EAST BRANCH, CLARION RIVER LAKE, PA

Location. Dam is in Elk County, PA on East Branch of Clarion River above Middle Fork, 7.3 miles above junction of East and West branches of Clarion River at Johnsonburg, PA, and about 105 miles northeast of Pittsburgh, PA. Reservoir is in Elk County, PA. (See Geological Survey Chart for Mount Jewett, PA.)

Existing project. A reservoir for flood control and low-water regulation. Dam is rolled-earthfill type with gate-controlled concrete tunnel under right abutment and a paved uncontrolled spillway on left abutment slope. Authorized project is complete. Reservoir is in operation for low-water regulation purposes in Clarion River Valley below and for flood control as a unit of a coordinated reservoir system for protection of Pittsburgh and upper Ohio Valley, generally. Construction of dam was started in June 1947 and completed in July 1952. Present project lands consist of 287.2 acres in fee and 1,296.7 acres in easements. Project was selected for construction under

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

general authorization for Ohio River Basin in Flood Control Acts of 1938 and 1944. For further project description see Annual Report for 1962, page 1206.

Local Cooperation. None required by law.

Operations during fiscal year. Operations and maintenance, general: Reservoir was operated for flood control and low-water regulation, as required; and necessary repairs were made to structures and appurtenances. IDIQ Construction Service Contracts for \$128,730 were utilized to pave gravel roads in the campground and to resurface parking lots adjacent to the main access road. Volunteers continued to apply limestone sand to tributary streams in an effort to neutralize acid mine drainage into the lake. In 2000 under a Cost Share Agreement between the District, US Forest Service, Willamette Industries, and utilizing labor from the Federal Bureau of Prisons, the District began a modernization program in the campground. Camp sites were redesigned and enlarged and 50 amp electrical hookups were installed. This work will continue in FY 01. Estimated flood control benefits achieved in FY 01 were \$7,000; total benefits through September 30, 2001, revised to include damages prevented in downstream districts as well as Pittsburgh District were \$73,796,000. Some reservoir management activity was performed throughout the year comprising sanitation measures, conservation, land management and operation of public-use facilities.

17. KINZUA DAM AND ALLEGHENY RESERVOIR, PA AND NY

Location. Dam site is on Allegheny River 9 miles above Warren, PA, and 198 miles above mouth of river at Pittsburgh, PA. Reservoir is in Warren and McKean Counties, PA., and Cattaraugus County, NY. (See Geological Survey Charts for Warren and Kinzua, PA-NY, and Randolph and Salamanca, NY.)

Existing project. Reservoir provides flood control, low water regulation, and recreation. Dam consists of a combination concrete gravity structure and rolled earth embankment with gate-controlled spillway and discharge conduits controlled by slide-gates in gravity section. Construction of project, initiated in February 1960, is complete. Construction of dam was started in September 1960 and completed in December 1965. Development of recreation area at Onoville under a cost-sharing agreement with Cattaraugus County was completed in June 1978. Present project lands consist of 2,646 acres in fee and easements over 22,420.0 acres. For further details see Annual Report for 1962, page 1202. Project was authorized by Flood Control Acts of 1936, 1938 and 1941.

Local cooperation. None required by law.

Licenses. The Federal Power Commission granted a license to Pennsylvania Electric Company and Cleveland Electric Illuminating Company on December 28, 1965, for the joint construction, operation and maintenance of a 325-megawatt pumped-storage installation (FPC Project No. 2280). The project is complete.

Operations during fiscal year. Operations and maintenance, general: Reservoir was operated for benefit of flood control and low water regulation, as required, and necessary repairs were made to structures and appurtenances.

Estimated flood control benefits achieved by this reservoir for FY 01 were \$25,000. Total flood control benefits for this reservoir through September 30, 2001 were \$948,170,000.

18. LOWER GIRARD DAM, OH

Location. Lower Girard Lake (formerly called Liberty Lake) is located in the northeast section of Ohio in Trumbull County in the City of Girard which lies just northwest of the City of Youngstown, Ohio. Lower Girard Lake Dam is located on Squaw Creek approximately 5,000 feet downstream of Girard Lake and approximately 2 miles upstream from Squaw Creek's confluence with the Mahoning River.

Existing Project. Lower Girard Lake together with Girard Lake, located immediately upstream, is a system of

water supply reservoirs that was constructed in 1917 and operated by the Ohio Water Service Company to provide process water to local steel mills and industry. The Lower and Upper Girard Dams were purchased by the City of Girard from the Consumer Ohio Water Company in 1995. The dam is an Ambersen type buttress dam. It has been determined that the dam requires rehabilitation to meet modern dam safety standards.

Local Cooperation. The City of Girard, Ohio is the non-Federal sponsor for this project. The City owns the dam and the lake impounded by it. A Design Agreement was executed in July 1998 with cost-sharing for the design portion set at 75% Federal and 25% by the City.

Operations during the fiscal year. In WRDA 1998 Congressman Traficant added \$2.5 M for the Corps to investigate the safety of, and rehabilitate the Lower Girard Dam. The "Special Report and Environmental Assessment" recommended a rehabilitation plan to bring the dam up to present safety standards. Total cost for design and rehabilitation is estimated at \$9.6 M. In FY 2000 Plans and Specifications were initiated and are approximately 60% complete.

19. LOYALHANNA LAKE, PA

Location. Dam is on Loyalhanna Creek, 4.5 miles above junction of creek with Conemaugh River at Saltsburg, PA, and about 29 miles east of Pittsburgh, PA. Reservoir is in Westmoreland County PA. (See Geological Survey Chart for Latrobe, PA).

Existing project. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides, and an earth embankment section ending in left abutment. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in October 1939 and completed in June 1942. Present project lands consist of 3,330.8 acres in fee and easements over 86.7 acres. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1219.

Local cooperation. None required by law.

Operations during fiscal year. Operations and maintenance, general: Reservoir was operated for benefit of flood control, as required, and necessary repairs were made to structures and appurtenances. In-house staff constructed a picnic pavilion, and upgraded 5 campsites with electric and water hookups at the Bush recreation Area. The Pennsylvania Department of Transportation created a 7 acres of wetlands mitigation site and a constructed a car top boat access at the Sanderson Area as part of mitigation for federal wetland and recreational property taken to widen PA State Route 22. Estimated flood control benefits achieved by this project for FY 01 were \$14,000. Total benefits for this reservoir through September 30, 2001 were

PITTSBURGH, PA, DISTRICT

\$320,200,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public-use facilities continued.

20. MAHONING CREEK LAKE, PA

Location. Dam is on Mahoning Creek in Armstrong County, PA, 22.9 miles above junction of creek with Allegheny River. It is about 6.50 miles southeast of New Bethlehem, PA, and about 51 miles northeast of Pittsburgh, PA. Reservoir is in Armstrong, Indiana, and Jefferson Counties, PA. (See Geological Survey Charts for Rural Valley and Smicksburg, PA).

Existing project. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam started in February 1939 and was completed in June 1941. Present project lands consist of 2,519.36 acres in fee and easements over 83.5 acres. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1210.

Operations during fiscal year. Operations and maintenance, general: Reservoir was operated for benefit of flood control, as required, and necessary repairs were made to structures and appurtenances. Roads and parking areas at the Dam Site area were re-surfaced in FY 00 for \$60,247 under a construction services IDIQ contract. Estimated flood damages prevented by this project for FY 01 were \$6,000; total benefits through September 30, 2001, revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were \$429,094,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance for public-use facilities continued.

21. MICHAEL J. KIRWAN DAM AND RESERVOIR, OH

Location. Dam site is on West Branch of Mahoning River which joins Mahoning River at Newton Falls, OH. It is 11 miles above mouth of branch and about 15 miles upstream from Warren, OH. Reservoir is in Portage County, OH. (See Geological Survey Charts for Ravenna, Garrettsville, Chagrin Falls, and Kent, OH.)

Existing project. Reservoir provides flood control, low-water regulation and recreation. Dam consists of a rolled-earth embankment structure with gate-controlled outlet works and an uncontrolled side-hill spillway through left abutment. Authorized project is completed and in operation for flood control and low water regulation purposes. Present project lands consist of 6,298.9 acres fee and easements over 27.9 acres. For further description see Annual Report for 1962, page 1231 (West Branch Reservoir, Mahoning River, Ohio). Project was authorized by 1958 Flood Control Act (H. Doc. 191, 85th Cong. 1st sess.), with local contribution requirements modified by Flood Control Act of 1960. Federal costs of completed project is \$17,370,000. Local interests contributed \$3,230,000 during period of construction bringing initial project cost to \$20,600,000. The State of Ohio has a lease from the Secretary of the Army for development and operation of recreation facilities in the reservoir area.

Local cooperation. Local interests must contribute \$5,200,000 for water pollution abatement and for municipal and industrial water supply purposes, of which \$3,230,000 was paid

in cash during construction. Unpaid balance at time project is placed in operation, \$1,970,000, will be paid in cash at that time or on an annual basis. Of the unpaid balance of contributed funds due and payable, payment in full of Trumbull County's share in the amount of \$663,040 has been received. Mahoning County elected to pay their share (\$1,306,960) in 50 annual installments of \$50,323.32, including interest.

Operations during fiscal year. Operations and Maintenance, general: Reservoir was operated for benefit of flood control and low-flow augmentation, as required, and necessary repairs were made to structures and appurtenances. Estimated Flood control benefits achieved by this project for FY 01 were \$765,000. Total benefits for this reservoir through September 30, 2001 were \$175,412,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued. This work was limited in scope as state of Ohio has jurisdiction over most of the recreation in reservoir area.

22. MOSQUITO CREEK LAKE, OH

Location. Dam is on Mosquito Creek, 12.6 miles above junction of creek with Mahoning River at Niles, OH, and about 18 miles northwest of Youngstown, OH. (See Geological Survey Charts for Bristolville and Kinsman, OH, and Pennsylvania.)

Existing project. A reservoir for flood control, low-water regulation and water supply storage. Dam is rolled-earthfill type with outlet facilities through dam, and an uncontrolled natural wasteway to discharge overflow from reservoir. Authorized project is complete and in operation for flood control and low-water regulation purposes in industrialized Mahoning and Beaver Valleys below. Construction of dam was started in July 1943 and was ready for beneficial use in January 1944. Present project lands consist of 11,180.4 acres in fees and easements over 276.0 acres. State of Ohio has a license from Secretary of the Army for development and operation of recreation facilities in reservoir area. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1228.

Local cooperation. None required at completed project; however, future recreational developments are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. Operation and maintenance, general: Reservoir was operated for benefit of flood control and low-flow regulation as required, and necessary repairs were made to structures and appurtenances. Estimated flood control benefits achieved by this reservoir for this fiscal year were \$531,000. Total flood control benefits for this reservoir through September 30, 2001 were \$121,135,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of certain public-use facilities continued. This work was limited in scope as State of Ohio has jurisdiction over most of the recreation in reservoir area.

23. OHIO RIVER BASIN (PITTSBURGH DISTRICT)

Location. A series of dikes, floodwalls, channel improvements, and reservoirs/lakes in Ohio River Basin within Pittsburgh District.

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

Existing project. Individual projects considered in comprehensive plan within Pittsburgh District. (See Tables 18-B, 18-E and 18-K on Acts authorizing existing projects, local protection projects and reservoirs.)

Operations during fiscal year. New work: None by the United States except as stated in individual projects. Completed local protection projects operated and maintained by local interests, including those projects for which individual reports have been included.

24. SHENANGO RIVER LAKE, PA AND OH

Location. Dam is on Shenango River about 0.8 mile above Sharpsville, PA, and about 33 miles above junction of river with Mahoning River, which unite near New Castle, PA, to form Beaver River. Reservoir is in Mercer County, PA and Trumbull County, Ohio. (See Geological Survey Chart for Kinsman, Ohio, and Shenango, PA.)

Existing project. A reservoir for flood control, low-flow augmentation and recreation. Dam consists of a concrete gravity structure with gate-controlled outlet works and an uncontrolled center spillway section. Authorized project is complete. Reservoir is in operation for low-water regulation purposes in Shenango River valley below and for flood control as a unit of a coordinated reservoir system for protection of Shenango River valley and the Beaver and upper Ohio River Valley, generally. Construction of dam was started in March 1963 and completed in May 1965. Present project lands consists of 14,485.94 acres in fee and easements over 198 acres. Approximately 65.94 acres in abandoned railroad right-of-way were acquired for project use. Future work consists of completion of project lands of any additional recreation facilities as required to serve the public needs. For further project description, see Annual Report for 1962, page 1230. Project was authorized by 1938 Flood Control Act.

Local cooperation. None required by law.

Operations during fiscal year. - Operations and Maintenance, general: Reservoir was operated for benefit of flood control and low-flow augmentation, as required, and necessary repairs were made to structures and appurtenances. A construction service IDIQ contract was utilized to resurface facility roads within the Shenango Recreation Area for \$ 98,086. A rock reef for fish habitat was constructed through a cooperative effort with the Pennsylvania Fish and Boat Commission. This is the largest artificial rock reef in the State of Pennsylvania. Estimated flood control benefits achieved through September 30, 2001 revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were \$100,143,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance continued.

25. STONEWALL JACKSON LAKE, WV

Location. In Lewis County, North Central West Virginia, on the West Fork River, which joins the Tygart River at Fairmont, West Virginia to form the Monongahela River. Damsite is located at Brownsville, West Virginia, about 4 miles south of Weston and 72 miles above mouth of West Fork River at Fairmont, WV. (See Geological Survey Charts for Weston and Crawford, WV.)

Existing project. Provides for construction of a reservoir for flood control, water supply, water quality control, area redevelopment and recreation. Dam is concrete gravity type, 95 feet high and 620 feet long. Outlet works consist of five multi-

level sluices, spillway is uncontrolled. Storage capacity is 74,650 acre-feet controlling an area of 102 square miles. A station hydropower plant completed in 1995 supplies power to the dam and administration building, with excess power being sold to an electric utility company. Project was authorized by 1966 Flood Control Act. Estimated initial Federal cost for new work (1991) is \$231,000,000 (includes an estimated \$24,900,000 reimbursement by non-Federal interests.)

Present project lands consist of 20,451 acres in fee and easements over 398 acres.

Local cooperation. Local interests are required to make arrangements for repayment, under the provisions of the Water Supply Act of 1958, as amended, of that part of the construction cost and annual operation, maintenance and replacement costs allocated to municipal and industrial water supply, an amount presently estimated at \$4,350,000 for construction; and \$15,000 annually for operations, maintenance and replacements. Also, in accordance with Federal Water Project Recreation Act, local interests are required to administer project land and water areas for recreation and fish and wildlife enhancement, pay, contribute in kind or repay (which may be through user fees) with interest, one-half of the separable first costs of the reservoir project allocated to recreation and fish and wildlife enhancement, an amount presently estimated at \$24,810,000, bear all costs of operation, maintenance and replacement of recreation and fish and wildlife land and facilities, the amount involved being currently estimated on an average annual basis to be \$457,000, exercise to the full extent of their legal capability, control against removal of streamflow made available for water quality control; and contribute to the control of pollution of streams subject to low-flow augmentation by adequate treatment or other methods of controlling wastes at their source. The requirements of Section 221 were amended in 1971 to exempt assurances for future demands for water supply pursuant to the Water Supply Act of 1958 from the contractual requirements of the Act. Accordingly, the city of Weston, West Virginia, has provided assurances that it will enter into a water supply contract with the Department of the Army within a period of time which will permit paying out the costs allocated to the water supply storage within the life of the project. A recreation cost-sharing contract, in accordance with the requirements of the Federal Water Project Recreation Act, P.L. 89-72, was executed by the State of West Virginia on March 27, 1977. Local cooperation assurances for recreation cost-sharing were executed by the Governor and Attorney General of West Virginia on May 29, 1973. In this connection, Section 8 of P.L. 92-222 deleted the requirement that the State of West Virginia "hold and save the United States free from damages resulting from water rights claims due to construction and operation of the project." Legislation relieving Stonewall Jackson Lake, WV, project of the requirements of Section 221, P.L. 96-611 was contained in Water Resources Development Act of 1974 signed by the President on March 7, 1974.

Operations during fiscal year. New Work: The Corps worked with the State of WV to revise the Master Plan to incorporate higher revenue producing recreation facilities, including a lodge, golf course, cabins and camping. The revised Master Plan was approved by the Corps in 1992. The FY 1992 Energy and Water Development Appropriations Act allows the State cost-sharing credits for all of these facilities except the golf course. In March 1994, the State and the Assistant Secretary of the Army for Civil Works ASA (CW) executed an amendment to the 1977 Stonewall Jackson Lake Recreation Cost-Sharing Contract to reflect these credits. The State of West Virginia is to build the approved remaining recreation

PITTSBURGH, PA, DISTRICT

facilities within ten years of the executed amendment, or March 2004, in accordance with the timeframes and conditions set forth in the amended contract. The WV State Supreme Court has ruled to allow the sale of \$6 million in revenue bonds for the construction.

In 1996, the State issued a solicitation for interest and qualifications to create a public/private joint venture for the purpose of developing recreational facilities at Stonewall Jackson Lake Park. In October 1997, the State selected a private firm to design and build the remaining recreational facilities. Section 508 of the FY 1998 Energy and Water Appropriations Act provides for cost sharing credits for this public/private development against the current \$21.5 million owed to the government by the State of WV. Stonewall Resort is scheduled to be operational in the Spring of 2002, offering a full scope of recreational opportunities, from championship golf to water sports and outdoor activities in the surrounding state park. It features a 198-room luxury lodge and conference center, lakeside cottages surrounded by outdoor recreation with an Arnold Palmer Signature Golf Course. The resort is the partnership between developer McCabe-Henley-Durbin of Charleston, West Virginia, the State and the Corps.

Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued. This work was limited in scope as State of West Virginia has jurisdiction over most of the recreation in reservoir area.

Estimated flood control benefits achieved for this project for FY 01 were \$1,154,000; total flood control benefits through September 30, 2001, were \$96,868,000.

26. TIONESTA LAKE, PA

Location. Dam is on Tionesta Creek, 1.25 miles above junction of creek with Allegheny River at Tionesta, PA, and about 78 miles northeast of Pittsburgh, PA. Reservoir is entirely in Forest County, PA. (See Geological Survey Charts for Tionesta, Tidioute and Sheffield, PA.)

Existing project. A flood control reservoir dam of earthfill type with separate uncontrolled saddle spillway and tunnel outlet works. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in May 1938 and completed in January 1941. Present project lands consists of 2,794.77 acres in fee and easement over 13.1 acres. Approximately 2.53 acres of fee were disposed at the project. Future work consists of provision on project lands of additional recreational facilities as required to serve public needs. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1203.

Local cooperation. None required by law.

Operations during fiscal year. Operation and maintenance general: Reservoir was operated for benefit of flood control and low-flow augmentation, as required, and necessary repairs were made to structures and appurtenances. The National Recreation Reservation Service (NRRS) was initiated at the Tionesta Recreation Area campground during the FY 99 recreation season and went on-line in FY 00. Estimated flood control benefits achieved by this project through September 30, 2001 revised to include downstream districts, were \$419,517,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public-use facilities con-

tinued.

27. UNION CITY DAM, PA

Location. In Erie County, northwestern Pennsylvania, on French Creek, a tributary of Allegheny River. Damsite is 24 miles upstream from Cambridge Springs, PA, and 41 miles upstream from Meadville, PA. (See Geological Survey Chart for Union City, PA - NY.)

Existing project. A flood control reservoir dam of earth embankment non-gated type with uncontrolled side-channel spillway. Outlet works consist of a lower outlet located in valley floor constructed of reinforced concrete conduit 8 feet by 4.5 feet and an upper outlet consisting of an uncontrolled slot 9.5 feet wide through the north end of the ogee weir in the spillway. Dam is 1,420 feet long at top rising 88 feet above streambed and provides gross capacity of 47,640 acre-feet from a drainage area of 222 square miles. Project authorization was modified to provide for a conservation pool and addition of recreation facilities. On November 5, 1974, a referendum proposal was defeated by the constituents of Erie County in regard to the cost-sharing for construction of recreation facilities. In view of the foregoing, all action toward implementation of the authorized project modification was discontinued. Reservoir is operated as one of a two-reservoir system for reduction of flood stages in French Creek Basin between damsite and mouth, Allegheny River from Franklin, PA, to Pittsburgh, PA, inclusive, and upper Ohio River Valley. Initial highway relocations were completed in October 1968 and remaining highway relocations were completed in May 1972. Construction of the dam was started in July 1968 and completed in September 1971. Present project lands consist of 161.4 acres in fee and easements over 2,410.29 acres. Existing project was authorized by 1962 Flood Control Act.

Local cooperation. Local interests are required to inform affected interests in French Creek Basin at least annually, that the system of reservoirs of which Union City Dam is a part, will not provide protection against maximum floods. On November 10, 1964 the Department of Forests and Waters of the Commonwealth of Pennsylvania furnished formal assurances of local cooperation in respect to notifying local interests at least annually that the system of reservoirs will not provide protection against maximum floods. A referendum on the ballot during the November 1974 election regarding the approval to cost-share the maintenance of a summer pool was defeated by the local voters.

Operations during fiscal year. Operation and maintenance, general: Maintenance of the structure and appurtenances was performed as required. This dam acted as an uncontrolled detention type dam during the fiscal year. Estimated flood control benefits achieved for this project for FY 01 were \$272,000. Total flood control benefits for this reservoir through September 30, 2001, revised to include downstream districts, were \$46,932,000.

28. WOODCOCK CREEK LAKE, PA

Location. In Crawford County, northwestern Pennsylvania, on Woodcock Creek, a tributary of French Creek. Damsite is about 4.1 miles above mouth of Woodcock Creek and about 5 miles northeast of Meadville, PA. (See Geological Survey Chart for Meadville, PA.)

Existing project. A flood-control reservoir dam of rolled-earth embankment type, gate-controlled outlet works with a 6 foot-wide by 7.75 foot-high conduit and uncontrolled saddle spillway on the left abutment. Dam is 4,650 feet long at top

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

rising 90 feet above streambed and provides for gross capacity of 20,000 acre-feet from a drainage area of 46 square miles. Reservoir is operated as one of a two-reservoir system for reduction of flood stages in French Creek Basin between damsite and mouth. Allegheny River from Franklin, PA, to Pittsburgh, PA, inclusive, and upper Ohio River Valley. Authorized project is complete. Construction of dam was started in July 1970 and completed in July 1973. Land acquired for project consists of 1,731.5 acres in fee and easements over .56 acres. Project was authorized for flood control and recreation by 1962 Flood Control Act. Storage for water quality control was added to the project during the preconstruction planning stage.

Local cooperation. Local interests must inform affected interests in French Creek Basin at least annually, in a manner satisfactory to District Engineer, that a system of reservoirs of which Woodcock Creek is a part, will not provide protection against maximum floods. Pennsylvania Department of Forests and Waters assumed responsibility of local cooperation for project.

Operations during fiscal year. Operation and maintenance, general: Maintenance of the structure and appurtenances was performed as required. Estimated flood control benefits achieved by this project for FY 01 were \$20,000. Total flood control benefits achieved by this project through September 30, 2001, revised to include downstream districts were \$26,645,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

29. YOUGHIOGHENY RIVER LAKE, PA AND MD

Location. Dam is on Youghiogheny River about 74.2 miles above its junction with Monongahela River at McKeesport, PA. It is 1.2 miles upstream from Confluence, PA, and about 57 miles southeast of Pittsburgh, PA. Reservoir is in Fayette and Somerset Counties, PA, and Garrett County, MD. (See Geological Survey Charts for Confluence, PA, Accident, MD, West Virginia and Pennsylvania.)

Existing project. Reservoir for flood control, low-flow augmentation, and pollution abatement purposes. Dam is rolled-earthfill type with separate uncontrolled side channel spillway and tunnel outlet works. Authorized project is complete. For flood control, reservoir is operated as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in June 1940 and completed in May 1944. Present project lands consist of 3,914.9 acres in fee and easements over 0.62 acre.

Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1223.

Local cooperation. None required.

Licenses. A non-Federal hydropower project utilizing releases from Youghiogheny River Lake was constructed in accordance with FERC License 3623. D/R Hydro Company is the authorized representative of the Licensee, Youghiogheny Hydroelectric Authority, and is responsible for operation of the plant. It has a 10-megawatt capacity. The plant began commercial operation on December 7, 1989.

Operations during fiscal year. Operations and maintenance general: Reservoir was operated for benefit of flood control and

low flow augmentation, as required, and necessary repairs were made to structures and appurtenances. A \$1,000,000 contract for the rehabilitation of the Spillway launching area was completed in FY 01. In-house labor electrified 20 high-impact campsites at the Outflow Recreation Area. A contract was awarded and completed to replace outdated and worn sewage lift stations in the Tub Run campground. The Outflow and Tub Run campgrounds operated online with the National Recreation Reservation Service (NRRS) for the FY 01 recreation season. Youghiogheny Lake was the CELRD Division nominee for Natural Resource Project of the Year. Youghiogheny Lake was also designated as one of 13 Corps lakes in the country participating in the National Lake pilot program. Estimated flood control benefits achieved by this reservoir for FY 01 were \$43,000. Total flood control benefits achieved by this project through September 30, 2001 revised to include damages prevented in downstream districts, were \$444,479,000. Total recreation benefits for FY 01 were \$9,390,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

30. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations within boundaries of their respective districts. Inspections were made of completed units transferred to local interests for maintenance and operation and local interests were advised, as necessary, of measures required to maintain these projects in accordance with standards prescribed by regulations. (See Table 18-L for dates of inspections.)

Costs for this fiscal year, \$101,158. Total cost to September 30, 2001 was \$2,275,208.

31. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 18-E on other authorized flood control projects.

32. FLOOD CONTROL WORKS UNDER SPECIAL AUTHORIZATION

For flood control activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (preauthorization)

See Table 18-M.

For emergency bank protection (Sec. 14 of 1946 Flood Control Act, Public Law 526, 79th Cong.)

See Table 18-M.

Flood control and coastal emergencies (Public Law 99, 84th Cong., and antecedent legislation.)

Disaster Preparedness	\$273,876
Emergency Operations	42,428
Rehabilitation	<u>38,953</u>
Total Cost for Fiscal Year	\$355,257

PITTSBURGH, PA, DISTRICT

General Investigations

33. SURVEYS

Navigation Studies	\$845,832
Flood Damage Prevention Studies	123,344
Special Studies	77,483
Review of Authorized Projects	72,775
Miscellaneous Activities	210,742
Coordination with other Federal Agencies	<u>57,642</u>
Total Cost for Fiscal Year	\$1,387,818

**34. COLLECTION AND STUDY
OF BASIC DATA**

Costs this fiscal year were \$133,205 for flood plain management services.

**35. PRECONSTRUCTION NGINEERING
AND DESIGN**

Conemaugh, Nanty Glo, PA	\$ 83,137
Weirton Port, WV	14,923
Chartiers Creek, PA	<u>256</u>
Total Cost for Fiscal Year	\$ 98,316

36. RESEARCH AND DEVELOPMENT

None.

**37. PROJECT MODIFICATIONS FOR
IMPROVEMENT OF ENVIRONMENT**

Coordination Acct Funds	\$ 9,840
Preliminary Restoration Plans	9,633
Pleasant Ck Wetland, Tygart, WV	75
Bone Run, NY	<u>6,819</u>
Total Cost for Fiscal Year	\$26,367

**38. AQUATIC ECOSYSTEM
RESTORATION**

Coordination Acct Funds	\$ 6,138
Preliminary Restoration Plans	27,808
Nine Mile Run, Allegheny Co, PA	256,233
North Fork Yellow Ck, OH	375,372
North Park Lake, PA	101,842
Fall Run, Wheeling Ck, OH	<u>4,251</u>
Total Cost for Fiscal Year	\$771,644

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 18-A COST AND FINANCIAL STATEMENT

Project	Funding	FY98	FY99	FY00	FY01	Total Cost to Sept 30, 2001
Navigation - Locks and Dams						
1. Allegheny River, PA	New Work					
	Approp.	----	----	----	----	18,157,860 ¹
	Cost	----	----	----	----	18,157,860 ¹
	Maint.					
	Approp.	6,448,000	10,466,000	11,052,000	13,132,152	196,618,895 ²
	Cost	6,536,467	7,819,163	13,984,568	13,126,688	196,597,281 ²
2. Monongahela River, PA and WV	New Work					
	Approp.	13,202,000	21,342,000	45,465,000	57,402,000	575,356,835 ³
	Cost	16,327,949	23,299,052	45,018,588	58,365,732	564,847,149 ⁴
	Maint.					
	Approp.	14,044,000	12,674,000	13,447,000	14,599,264	340,707,121 ⁵
	Cost	14,273,266	13,091,848	13,429,900	14,610,760	340,696,914 ⁶
3. Tygart Lake, WV	Major Rehab.					
	Approp.	----	----	----	----	15,857,000
	Cost	----	----	----	----	15,857,000
	New Work					
	Approp.	614,000	572,000	2,070,000	3,948,000	27,518,932 ⁷
	Cost	550,474	652,235	2,056,653	4,005,181	27,507,100 ⁷
	Maint.					
	Approp.	1,315,000	2,011,700	1,690,000	1,012,327	25,140,568 ⁸
	Cost	1,072,824	2,370,143	1,698,084	1,012,981	25,137,429 ⁸
	Major Rehab.					
	Approp.	----	----	----	----	89,000
	Cost	----	----	----	----	88,999
Flood Control - Local Protection						
4. Chartiers Creek, PA	New Work					
	Approp.	----	----	----	----	30,818,153 ⁴¹
	Cost	----	----	----	----	30,818,153 ⁴¹
5. Elkins, WV	New Work					
	Approp.	----	----	----	----	1,772,627
	Cost	----	----	----	----	1,772,627
	Maint.					
	Approp.	1,000	1,000	16,000	15,966	404,158
	Cost	8,582	3,707	16,254	11,766	399,726
6. Johnstown, PA	New Work					
	Approp.	----	----	----	----	8,865,388 ⁹
	Cost	----	----	----	----	8,865,388 ⁹
	Maint.					
	Approp.	212,000	812,000	1,008,000	262,972	9,215,162
	Cost	208,015	797,523	1,036,127	265,309	9,227,217
	Major Rehab.					
	Approp.	5,982,000	4,873,000	8,832,000	6,591,000	34,097,000 ⁴³
	Cost	5,425,479	5,267,814	8,940,917	6,695,566	34,034,483 ⁴⁴

PITTSBURGH, PA, DISTRICT

TABLE 18-A (CONTINUED) COST AND FINANCIAL STATEMENT

Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost To Sept 30, 2001
7. Punxsutawney, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	3,586,107 ¹⁰
	Cost	----	----	----	----	3,586,107 ¹⁰
	Maint.					
	Approp.	13,000	3,000	12,000	12,972	1,693,569 ¹¹
	Cost	6,801	4,029	16,864	13,886	1,693,542 ¹¹
8. Saw Mill Run, PA	New Work					
	Approp.	20,000	41,000	243,000	229,000	1,033,000
	Cost	293,645	194,109	197,563	250,558	1,005,197
9. South Central, PA Environmental Restoration	New Work					
	Approp.	10,000,000	13,000,000	0	8,380,000	45,415,000 ⁴²
	Cost	1,399,029	13,554,280	8,641,623	3,426,574	29,678,366 ⁴²
10. Turtle Creek, PA	New Work					
	Approp.	(54,553)	----	----	----	26,680,799 ³⁸
	Cost	(18,392)	----	----	----	26,680,799 ³⁸
11. WV & PA Flood Control, WV & PA	New Work					
	Approp.	2,100,000	500,000	1,454,000	1,676,000	5,730,000
	Cost	232,832	921,033	1,346,120	1,585,674	4,085,659
Flood Control - Reservoirs						
12. Berlin Lake, Ohio River Basin, OH	New Work					
	Approp.	----	----	----	----	8,739,987 ¹²
	Cost	----	----	----	----	8,739,987 ¹²
	Maint.					
	Approp.	3,372,000	3,560,400	4,422,000	4,640,968	49,800,073 ¹³
	Cost	4,053,379	3,652,353	4,387,787	4,682,432	49,796,685 ¹³
13. Conemaugh River Lake, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	46,012,411 ¹⁴
	Cost	----	----	----	----	46,012,411 ¹⁴
	Maint.					
	Approp.	1,633,000	1,034,000	1,005,000	909,293	25,961,179 ³⁹
	Cost	2,136,743	1,167,223	1,009,019	907,349	25,958,527 ³⁹
14. Crooked Creek Lake, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	4,482,933 ¹⁵
	Cost	----	----	----	----	4,482,933 ¹⁵
	Maint.					
	Approp.	1,542,759	1,535,000	1,586,000	1,227,749	35,777,368 ¹⁶
	Cost	1,605,591	1,617,586	1,575,244	1,241,922	35,776,502 ¹⁶
	New Work					
	Approp.	----	----	----	----	9,539,586 ¹⁷
	Cost	----	----	----	----	9,539,586 ¹⁷
	Maint.					
	Approp.	898,000	969,500	1,043,000	809,058	21,293,282 ¹⁸
	Cost	922,310	998,733	1,029,793	822,686	21,291,756 ¹⁸
15. East Branch, Clarion River Lake, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	9,539,586 ¹⁷
	Cost	----	----	----	----	9,539,586 ¹⁷
	Maint.					
	Approp.	898,000	969,500	1,043,000	809,058	21,293,282 ¹⁸
	Cost	922,310	998,733	1,029,793	822,686	21,291,756 ¹⁸

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 18-A (CONTINUED) COST AND FINANCIAL STATEMENT

Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost To Sept 30, 2001
16. Kinzua Dam and Allegheny Reservoir, Ohio River Basin, PA and NY	New Work					
	Approp.	----	----	----	----	109,305,076 ¹⁹
	Cost	----	----	----	----	109,305,076 ¹⁹
	Maint.					
	Approp.	1,334,954	1,263,000	1,337,000	1,245,835	34,151,592 ³⁹
	Cost	1,336,783	1,312,786	1,324,820	1,261,543	34,148,583 ³⁹
	Major Rehab.					
	Approp.	----	----	----	----	2,921,000
	Cost	----	----	----	----	2,921,000
17. Lower Girard Dam, OH	New Work					
	Approp.	309,000	160,000	400,000	510,000	1,379,000
	Cost	80,552	334,313	328,677	601,920	1,345,462
18. Loyalhanna Lake, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	5,727,531 ²⁰
	Cost	----	----	----	----	5,727,531 ²⁰
	Maint.					
	Approp.	1,099,000	1,037,000	1,247,000	964,177	26,280,730 ²¹
	Cost	1,102,203	1,078,120	1,245,382	961,873	26,276,211 ²¹
19. Mahoning Creek Lake, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	7,144,973 ²²
	Cost	----	----	----	----	7,144,973 ²³
	Maint.					
	Approp.	2,802,000	956,500	971,000	768,907	23,036,469 ⁴⁰
	Cost	3,413,337	1,228,343	954,989	783,453	23,034,215 ⁴⁰
	Minor Rehab.					
	Approp.	----	----	----	----	47,033
	Cost	----	----	----	----	47,033
20. Michael J. Kirwan Dam and Reservoir, Ohio River Basin, OH	New Work					
	Approp.	----	----	----	----	17,376,097 ²⁴
	Cost	----	----	----	----	17,376,097 ²⁴
	Maint.					
	Approp.	887,000	907,300	753,000	777,779	18,722,593 ²⁵
	Cost	869,061	979,667	751,564	775,590	18,718,914 ²⁵
21. Mosquito Creek, Lake, Ohio River Basin, OH	New Work					
	Approp.	----	----	----	----	4,253,029 ²⁶
	Cost	----	----	----	----	4,253,029 ²⁶
	Maint.					
	Approp.	1,031,000	1,127,000	1,143,000	974,142	20,742,043 ⁴⁵
	Cost	1,003,425	1,228,824	1,135,988	977,429	20,737,415 ⁴⁵
22. Nanty Glo Conemaugh River, PA	New Work					
	Approp.	----	----	----	67,000	67,000
	Cost	----	----	----	3,615	3,615
23. Ohio Environmental Infrastructure, OH	New Work					
	Approp.	----	----	----	40,000	40,000
	Cost	----	----	----	22,894	22,894
24. Ohio River Basin Pittsburgh, PA District Consolidated	New Work					
	Approp.	----	----	----	----	985,197 ²⁷
	Cost	----	----	----	----	985,197 ²⁷

PITTSBURGH, PA, DISTRICT

TABLE 18-A (CONTINUED) COST AND FINANCIAL STATEMENT

Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost To Sept 30, 2001
25. Shenango River Lake, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	40,217,201 ²⁸
	Cost	----	----	----	----	40,217,201 ²⁸
	Maint.					
	Approp.	2,078,000	2,278,000	2,270,000	2,244,914	48,915,471 ²⁹
	Cost	1,987,107	2,420,917	2,271,569	2,226,516	48,885,962 ²⁹
26. Stonewall Jackson Lake, Ohio River Basin, WV	New Work					
	Approp.	61,307	70,000	(70,000)	150,000	211,524,741
	Cost	94,530	1,249	25,548	73,147	211,439,567
	Maint.					
	Approp.	921,000	844,100	881,000	848,385	11,920,528
	Cost	1,048,722	874,885	883,275	844,650	11,913,024
27. Tionesta Lake, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	7,792,378 ³⁰
	Cost	----	----	----	----	7,792,378 ³¹
	Maint.					
	Approp.	1,615,000	1,585,300	1,506,000	1,353,155	31,720,953 ³²
	Cost	1,530,343	1,704,350	1,495,070	1,358,705	31,709,042 ³²
28. Union City Dam, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	14,559,800
	Cost	----	----	----	----	14,559,800
	Maint.					
	Approp.	272,000	247,000	198,000	186,445	6,974,143
	Cost	277,942	258,029	195,607	188,472	6,973,374
29. Woodcock Creek Lake, Ohio River Basin, PA	New Work					
	Approp.	----	----	----	----	20,545,065 ³³
	Cost	----	----	----	----	20,545,065 ³⁴
	Maint.					
	Approp.	842,000	782,500	729,000	681,243	16,867,710 ³⁵
	Cost	841,392	813,542	727,211	680,486	16,863,933 ³⁵
30. WV Central, WV	New Work					
	Approp.	----	----	----	25,000	25,000
	Cost	----	----	----	4,154	4,154
31. Youghiogheny River Lake, Ohio River Basin, PA and MD	New Work					
	Approp.	----	----	----	----	12,521,167 ³⁶
	Cost	----	----	----	----	12,521,167 ³⁶
	Maint.					
	Approp.	2,043,937	1,918,700	3,173,000	1,998,176	44,831,046 ³⁷
	Cost	1,813,962	2,190,876	3,127,000	2,043,075	44,800,429 ³⁷

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 18-A (CONTINUED)

COST AND FINANCIAL STATEMENT

1. Includes \$2,453,737 from emergency relief funds and \$1,250,049 from public works funds.
2. Includes \$64,365 public works acceleration, executive funds (1963) and \$191,400 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$995,000 appropriated and expended for major maintenance at L/D's 2, 3 and 4.
3. Includes amounts appropriated to date for; Point Marion, L&D 8, PA - \$56,226,400 for CG, \$56,817,000 for IWTF, \$3,322,057 for raising crest of dam in 1958-9, \$2,086,438 for original reconstruction years 1923-26 and \$618,758 for AE&D (Total \$119,070,653). Grays Landing, L&D 7, PA - \$85,897,700 for CG, \$86,148,500 for IWTF, and \$803,000 for AE&D (Total \$172,849,200). L&D 2, 3 & 4 - \$75,753,700 for CG, \$88,476,000 for IWTF (Total \$164,229,700).
4. Includes amounts expended to date on; Point Marion, L&D 8, PA - \$56,215,160 for CG, \$56,452,243 for IWTF, \$3,322,057 for raising crest of dam in 1958-9, \$2,086,438 for original reconstruction years 1923-26 and \$618,758 for AE&D (Total \$118,694,656). Grays Landing, L&D 7, PA - \$85,771,413 for CG, \$86,032,515 for IWTF, and \$803,000 for AE&D (Total \$172,606,928). L&D 2, 3 & 4 - \$75,247,312 for CG, \$87,888,974 for IWTF (Total \$163,136,286).
5. Includes \$22,549 public works acceleration, executive funds (1963), \$742 for maintenance for previous project and \$582,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.
6. Includes \$22,549 public works acceleration, executive funds (1963), \$742 for maintenance for previous project and \$464,508 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.
7. Includes \$1,999,995 emergency relief funds, \$10,000,000 public work funds, \$234,000 Code 711 funds and \$412,088 Code 713 funds, \$462,000 appropriated to and \$218,374 expended on the Dam Safety Assurance Program - CG; excludes \$409,622 contributed by local interest.
8. Includes \$89,000 provided from the Productive Employment Appropriations, Act (PL 98-8) 1983 funds. Also includes \$425,000 appropriated to and \$424,493 expended on the Dam Safety Assurance Program O&M.
9. Includes \$33,423 from emergency relief funds.
10. Excludes \$180,485 for new work expended from contributed funds.
11. Includes \$283,988 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.
12. Includes \$1,542,500 Code 711 funds, \$809,700 Code 712 funds and \$99,111 Code 713 funds; excludes \$100,000 contributed by local interest.
13. Includes \$40,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes \$7,679 appropriated to and expended from M&O of dams in FY 97 and \$703,407 expended to date on M&O of dams.
14. Includes \$5,351 from emergency relief funds and \$328,000 Code 711 funds.
15. Includes \$63,788 from emergency relief funds. Also includes \$278,044 Code 711 funds.
16. Includes \$45,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes \$1,918 appropriated to and expended from M&O of dams in FY 97 and \$697,646 expended to date on M&O of dams.
17. Includes \$156,812 Code 711 funds.
18. Includes \$322,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$12,674 appropriated to and \$12,674 expended to date on M&O of Dams.
19. Includes \$2,791 from emergency relief funds, \$14,622 Code 711 funds and \$568,265 Code 713 funds; excludes \$389,370 contributed by local interest.
20. Includes \$7,339 from emergency relief funds and \$274,669 Code 711 funds.
21. Includes \$256,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$104,866 appropriated to and \$104,864 expended to date on M&O of Dams.
22. Includes \$25,671 emergency relief funds, \$162,381 Code 711 funds and \$561,247 Code 713 funds; excludes \$500,086 contributed by local interests.
23. Includes \$25,671 emergency relief funds, \$162,381 Code 711 funds and \$561,247 Code 713 funds; excludes \$456,611 contributed by local interests.
24. Includes \$74,900 Code 711 funds; excludes \$4,585,627.29 for new work contributed by local interest.
25. Includes \$315,500 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$3,174 appropriated to and \$3,713 expended to date on M&O of Dams.
26. Includes \$122,729 Code 711 funds and \$94,900 Code 713 funds.
27. Includes \$8,914 from emergency relief funds.
28. Includes \$1,730,100 Code 711 funds and \$1,618,300 Code 713 funds.
29. Includes \$152,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$11,896 appropriated to and \$11,891 expended to date on M&O of Dams.
30. Includes \$2,303,076 Code 711 funds (\$256,760 provided from the Productive Employment Appropriations Act PL 98-8, 1983 funds), \$275,900 Code 712 funds, and \$24,201 emergency relief funds.
31. Includes \$2,303,077 Code 711 funds, (\$256,531 provided from the Productive Employment Appropriations Act PL 98-8, 1983 funds), \$275,900 Code 712 funds, and \$24,201 emergency relief funds.
32. Includes \$203,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$9,362 appropriated to and \$9,360 expended to date on M&O of Dams.
33. Includes \$1,671,366 Code 711 funds.
34. Includes \$1,671,366 Code 711 funds.
35. Includes \$85,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds).
36. Includes \$2,846,263 Code 711 funds (\$293,000 provided from the Productive Employment Appropriations Act. (PL 98-8) 1983 funds).
37. Includes \$591,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$22,240 appropriated to and \$22,236 expended to date on M&O of Dams.
38. Includes \$1,840,000 (non-Federal) original construction cost and an additional \$4,205,000 (non-Federal) contributed and \$4,159,759 (non-Federal) expended to date.
39. Includes \$701,504 appropriated to and \$701,504 expended to date on M&O of Dams.
40. Includes \$104,684 appropriated to and \$104,683 expended to date on M&O of Dams.
41. Includes \$4,225,188 (non-Federal) contributed and expended to date.
42. Includes \$285,000 (non-Federal) contributed funds and \$282,914 (non-Federal) expended to date.
43. Includes \$4,894,000 appropriated to date for Rehab Operations and Maintenance and \$2,925,000 appropriated to date for Rehab Construction, General.
44. Includes \$4,880,202 appropriated to date for Rehab Operations and Maintenance and \$2,824,695 appropriated to date for Rehab Construction, General..
45. Includes \$701,504 appropriated to and \$701,504 expended to date on M&O of Dams.

TABLE 18-B AUTHORIZATION LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		ALLEGHENY RIVER, PA (See Section 1 of Text)	
	Aug 5, 1886	For lock and dam 1. (Fixed dam contemplated. Sep 29, 1891 Secretary of War authorized change to a moveable dam.)	Annual Report 1886, X 1545, Annual Report 1891, p. 2366
	June 3, 1896	For locks and dams 2 and 3.	H. Doc. 204, 54th Cong., 1st Sess., and Annual Report 1896, p. 2212
	July 25, 1912	For locks and dams 4 to 8 inclusive.	H. Doc. 540, 62d Cong., 2d Sess.
	July 3, 1930	For a depth of 9 feet in the lower 61 miles.	H. Doc. 356, 71st Cong., 2d Sess.
	Aug 30, 1935 ¹	Replace lock and dam 1 by a dredged channel, 9 feet deep and 200 feet wide up to lock 2, and construct new locks and dams 2 and 3, to replace existing locks and dams 2 and 3.	Rivers and Harbors Committee, Doc. 16, 72d Cong., 1st Sess.
	Aug 30, 1935 ¹	Construct lock and dam 9, raising crest of dam 8, and dredging a navigable channel to head of pool 8.	H. Doc. 721, 71st Cong., 3d Sess., and Rivers and Harbors Committee, Doc. 27, 73d Cong., 2d Sess.
	June 26, 1934 ²	Operation and care of locks and dams provided for with funds from War Department appropriation for rivers and harbors.	
2.		MONONGAHELA RIVER, PA AND WV	
	Mar 3, 1899	Enlarge and improve lock and dam 6; additional works at lock 3; new repair steamer and new dredge boat with equipment; all at an estimated cost of \$185,556.	Annual Report 1897, p. 2423
	June 13, 1902	Rebuild lock and dam 2 at estimated cost of \$655,961. (Estimate increased in 1910 to \$698,961.)	Annual Report 1909, p. 1756
	Mar 3, 1905	Acquisition of land and additional improvements at 5 and 6 at a cost of \$7,850.	Annual Report 1904, p. 460
	Mar 3, 1905	Rebuild lock and dam 3 at estimated cost of \$589,196.	H. Doc. 209, 58th Cong., 2d Sess.
	Mar 2, 1907	Reconstruct lock and dam 5 at estimated cost of \$756,042.	H. Doc. 209, 58th Cong., 2d Sess.
	Mar 4, 1913	Reconstruct lock and dam 6 at estimated cost of \$356,400. (Estimate increased in 1916 to \$418,860.)	H. Doc. 1217, 62d Cong., 3d Sess.
	Sep 22, 1922	Additional improvements at estimated cost as follows: Guide walls and guard walls, 1 to 6, \$1,255,130; Lengthen land chamber of lock 3 to 720 feet, \$787,722; New chamber (360 feet \$1,161,24 long), lock 4, \$699,786; Lock and dam 7, Lock and dam 8, \$1,165,758; Lock and dam 7 second \$419,126; Lock and dam 8 second chamber, chamber), \$504,465. Reconstruction dam 4, \$397,211; Marine ways, repair plant, office and warehouse, \$250,000, for a total of \$6,640,439.	H. Doc. 288, 67th Cong., 2d Sess.
	July 3, 1930	Construct new locks and dam 2.5 miles below existing structure, at estimated cost of \$2,175,000 in lieu of work authorized at old lock and dam 4.	Rivers and Harbors Committee, Doc. 22, 70th Cong., 2d Sess.
	Jan 31, 1931 ³	Chief of Engineers authorized to locate new locks and dam 4 above existing structure and on such site as they may deem most desirable.	
	June 26, 1934 ²	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors.	

TABLE 18-B

AUTHORIZATION LEGISLATION (Continued)

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
	May 17, 1950	Modification of existing project as follows: Provide 2 new locks and dams similar to Morgantown lock And dam to replace existing locks and dams 12 to 15 inclu Sive. Provide a movable crest on existing dam 8 to raise existing pool-full elevation 4 feet. Provide a navigation channel of 300-foot minimum bottom width and a 9-foot project depth above lock and dam 8. Provide an extension of navigable channel of upper Monon gahela River, into lower Tygart River for 2.1 miles at a maximum bottom width of 200 feet and a 9-foot project depth.	S. Doc. 100, 81st Cong., 1st Sess. 3.
	Nov 17, 1986	Construct new lock and dam 7 (Grays Landing Lock and Dam) as follows: The Grays Landing Lock and Dam will be located 3.0 miles downriver from existing Lock and Dam 7. It will consist of a single lock chamber, 84 feet wide by 720 feet long, with a fixed crest dam 576 feet in length. The existing Maxwell Pool at elevation 763.0 will be shortened three miles and the existing Pool 7 at elevation 778.0 will be extended down- river to the new dam. There will be no change in pool eleva tion above existing Dam 7. Upon completion of the new replacement lock and dam, existing Lock and Dam 7 will be removed. Total authorized cost is \$181,000,000. Replace existing 56'x360' lock chamber at Point Marion Lock and Dam (Lock and Dam 8) with new 84'x720' chamber. Ex- isting movable crest dam to remain; no change in pool eleva tions. Total authorized cost is \$53,600,000.	Supplemental Appro ria tions Act of 1985 for En gsneering and Design and Land Acquisition and Water Resources Devel opment Act of 1986; Pub lic Law 99-662 Sec. 301(a). Supplemental Appro ria tions Act of 1985 for En gsneering and Design and Land Acquisition and Water Resources Devel opment Act of 1986; Pub lic Law 99-662 Sec. 301 (a).
	Oct 31, 1992	Navigation improvements as follows: The project replaces the fixed crest dam at Locks and Dam 2 with a gated dam; raises the existing pool 2 by 5', constructs twin 84'x720' locks at Locks and Dam 4, and eliminates Locks and Dam 3; lowering the existing pool 3 by 3.2 feet. Authorized cost is \$705,000,000. Cost of construction is to be paid equally from the general fund of the Treasury and the Inland Waterways Trust Fund.	Water Resources Development Act of 1992; PL 102-580 Sec 101
3.		TYGART RIVER LAKE, WV	
	Jan 11, 1934	Construction of a dam and reservoir for low water regulation and flood control	H. Doc. 1792, 64th Cong. 2nd Sess.
	Aug 30, 1935		H. Doc. 106, 76th Cong. 1st Sess.
4.		ELKINS, WV	
	Jun 28, 1938	For construction of local flood protection projects.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75 th Cong. 1st Sess.
5.		JOHNSTOWN, PA	
	Jun 28, 1938	For construction of local flood protection projects.	H. Doc. 306, 74th Cong. 1 st Sess. FCC Doc. No. 1, 75 th Cong. 1st Sess.
6.		PUNXSUTAWNEY, OHIO RIVER BASIN, PA	
	Jun 28, 1938	For construction of local flood protection projects.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75 th Cong. 1st Sess.

TABLE 18-B

AUTHORIZATION LEGISLATION (Continued)

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
7.		SAW MILL RUN	
	Nov 17, 1986	Construction of local flood protection projects.	Water Resources Develop ment Act of 1986
	Oct 12, 1996		Water Resources Develop ment Act Of 1996 PL 99-622
8.		SOUTH CENTRAL PA ENVIRON IMPROVEMENT PROGRAM	
	Oct 31, 1992	Construction of local flood protection projects.	Water Resources Develop ment Act of 1992 PL 102-580 Sec 313
9.		WEST VIRGINIA AND PENNSYLVANIA FLOOD CONTROL	
	Oct 12, 1996	Construction of local flood protection projects.	Water Resources Develop ment Act of 1996 PL 104-303 Sec 581
10.		BERLIN LAKE, OHIO RIVER BASIN, OH	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
11.		CONEMAUGH RIVER LAKE, OHIO RIVER BASIN, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
12.		CROOKED CREEK LAKE, OHIO RIVER BASIN, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
13.		EAST BRANCH CLARION RIVER LAKE, OHIO RIVER BASIN, PA	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
14.		KINZUA DAM AND ALLEGHENY RESERVOIR, OHIO RIVER BASIN, PA AND NY	
	Jun 22, 1936 amended by Jun 28, 1938 modified by Aug 18, 1941	Construction of a dam and reservoir for flood control and low water regulation and recreation.	H. Doc. 306, 74th Cong. 1st Sess FCC Doc. No. 1, 75th Cong. 1st Sess.
		Construction of a dam and reservoir for flood control, pollution abatement, low water regulation and recreation.	H. Doc. 300, 76th Cong. 1st Sess.

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 18-B

AUTHORIZATION LEGISLATION (Continued)

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
	Dec 22, 1944	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
15.		LOYALHANNA LAKE, OHIO RIVER BASIN, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
16.		MAHONING CREEK LAKE, OHIO RIVER BASIN, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
17.		MICHAEL J. KIRWAN DAM AND RESERVOIR, OH	
	Jul 3, 1958	Construction of a dam and reservoir for flood control, water supply, low water regulation and recreation.	H. Doc. 191, 85th Cong. 1st Sess.
	Jul 14, 1960	To define cost-sharing arrangement for municipal & industrial water supply & water for pollution abatement purposes.	Pub. Law 86-645
18.		MOSQUITO CREEK LAKE, OHIO RIVER BASIN, OH	
	Jun 28, 1938	Construction of a dam and reservoir for flood control, low water regulation and water supply storage.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
19.		OHIO RIVER BASIN - Pittsburgh District	
	Aug 28, 1937	Construct levees, floodwalls, and drainage structures for protection of cities and towns in Ohio River Basin. Projects to be selected by Chief of Engineers with approval of Secretary of War at a cost not to exceed \$24,877,000 for construction.	Flood Control Committee, Doc. 1, 75th Cong., 1st Sess.
	Jun 28, 1938	Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable in discretion of Secretary of War and Chief of Engineers, and for initiation and partial accomplishment of plan, authorized \$75 million for reservoirs and \$50,300,00 for local flood protection works.	Flood Control Committee, Doc. 1, 75th Cong., 1st Sess.
	Aug 18, 1941	Additional \$45 million for prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 300, 76th Cong. 1st Sess.
	Dec 22, 1944	Additional \$70 million for further prosecution of comprehensive plan for Ohio River Basin, including additional projects in tributary basins.	H. Doc. 762, 77th Cong. 2d Sess.
	Jul 24, 1946	Additional \$125 million for further prosecution of comprehensive plan including additional projects in tributary basins.	H. Doc. 506, 78th Cong. 1st Sess.
	May 17, 1950	Additional \$100 million for prosecution of comprehensive plan for Ohio River Basin.	S. Doc. 20, 81st Cong. 1st Sess.
	Dec 30, 1963	Additional \$150 million for further prosecution of comprehensive plan for flood control and other purposes in Ohio River Basin.	Public Law 88-253, 88th Cong., 1st Sess.
	Jun 18, 1965	Additional \$89 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 6755, 89th Cong., 90th Cong. 1st Sess.
	May 12, 1967	Additional \$38 million for further prosecution of comprehensive plan for Ohio River Basin.	Public Law 90-17. 90th Cong., 1st Sess.
	Aug 13, 1968	Additional \$35 million for further prosecution of comprehensive plan for Ohio River Basin.	Public Law 90-483, 90th Cong., 2d Sess.

PITTSBURGH, PA, DISTRICT

TABLE 18-B AUTHORIZATION LEGISLATION (Continued)

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
	Jun 19, 1970	Additional \$69 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 15166, 91st Cong., 2d Sess.
	Mar 7, 1974	Additional \$120 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 10203, 93rd Cong. River Basin Monetary Authorization Act of 1974
	Oct 22, 1976	Authorized phase I design memorandum stage of advanced engineering and design of the project for abatement of acid mine drainage in the Clarion River Basin, Pa.	Water Resources Development Act of 1976; Public Law 94-587, Sec. 101 (a)
20.		SHENANGO RIVER LAKE, OHIO RIVER BASIN, PA AND OH	
	Jun 28, 1938	Construction of a dam and reservoir for flood control, low water regulation and recreation.	H. Doc. 306, 74th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	FCC Doc. No. 1, 75th Cong. 1st Sess. Sec. 4, Flood Control Act of 1944
21.		STONEWALL JACKSON LAKE, WV	
	Nov 7, 1966	Construction of a dam and reservoir for flood control, water supply, water quality control, area redevelopment and recreation.	S. Doc. 109, 89th Cong. 2nd Sess.
22.		TIONESTA LAKE, OHIO RIVER BASIN, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
23.		UNION CITY DAM, PA	
	Oct 23, 1962	Construction of a dam and reservoir for flood control.	S. Doc. 95, 87th Cong. 2nd Sess.
24.		WOODCOCK CREEK LAKE, PA	
	Oct 23, 1962	Construction of a dam and reservoir for flood control, recreation and storage for water quality control.	S. Doc. 95, 87th Cong. 2nd Sess.
25.		YOUGHIOGHENY RIVER LAKE, OHIO RIVER BASIN, PA AND MD	
	Jun 28, 1938	Construction of a dam and reservoir for flood control, low-flow augmentation, and pollution abatement, purposes.	H. Doc. 306, 74th Cong. 1st Sess. FCC Doc. No. 1, 75th Cong. 1st Sess.
	Dec 22, 1944 as amended	Construction, operation & maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944

1. Included in the Emergency Relief program April 8, 1935.

2. Permanent Appropriations Repeal Act.

3. Public Res. 117, 71st. Cong., 3d Sess.

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 18-C

OTHER AUTHORIZED NAVIGATION PROJECTS

(See Section 6 of Text)

Project	Status	For Last	Cost to September 30, 2001	
		Full Report See Annual Report For	Construction	Operations and Maintenance
Allegheny River, PA, open-channel work	Completed	1934	197,000	133,940
Buckhannon River, WV ^{1,2}	Completed	1893	5,500	
Cheat River, WV ^{1,2}	Completed	1895	12,997	
Pittsburgh Harbor, PA	Completed	1922	110,663	81,613

1. Abandonment recommended in H. Doc. 467, 69th Cong, 1st Sess.

2. No Commerce reported.

TABLE 18-E

OTHER AUTHORIZED FLOOD CONTROL PROJECTS

(All Projects Not Specifically Identified in Text)

Project and Status	For Last	Cost to September 30, 2001		
	Full Report See Annual Report For	Construction (Federal Cost)	Non-Federal Cost	Operation and Maintenance
Flood Protection				

Specifically Authorized Projects

Completed:

Bradford, PA	1962	7,601,763	1,895,000
Brookville, PA	1963	964,976	289,000
Buckhannon, WV	1972	1,568,661	75,000
Butler, PA	1970	1,556,181	534,000
DuBois, PA	1979	4,464,607	910,000
Johnsonburg, PA	1958	674,664	130,000
Kittanning, PA, Part 1	1949	130,317	2,000
Latrobe, PA	1951	207,659	44,400
Latrobe, PA	1970	2,556,652	698,000
Olean, NY	1954	3,217,531	597,000
Portage, PA	1965	150,386	14,900
Portville, NY	1954	2,070,484	353,000
Reynoldsville, PA	1959	385,494	26,000
Ridgeway, PA (Elk Creek)	1964	628,888	465,000
Salamanca, NY	1972	2,880,535	4,180,720
Turtle Creek, PA	1998	22,500,079	323,000
Washington, PA	1964	789,093	113,000
Wellsville, OR Section 1	1956	483,910	
Wellsville, OR Section 11	1956	157,633	152,200
Youngstown, OH	1976	3,621,134	

Deferred:

Benwood, WV	1954	81,028	
Chartiers Creek, PA	1998	26,592,965	

Authorized by Chief of Engineers

Completed:

Amsterdam, OH	1964	183,072	22,500
Big Run, PA	1965	364,208	35,900
Burgettstown, PA		83,129	
Friendsville, MD		41,529	2,200
Girty's Run, Millvale, PA	1986	2,655,934	701,722

PITTSBURGH, PA, DISTRICT

TABLE 18-E

OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(All Projects Not Specifically Identified in Text)
(CONTINUED)

Project and Status	For Last			Cost to September 30, 2001
	Full Report See Annual Report For	Construction (Federal Cost)	Non-Federal Cost	Operation and Maintenance
Grantville, PA	-	75,908	3,000	
Leetonia, OH	-	89,299	17,200	
Oil City, PA	-	43,595		
Oil City Ice Control Structures	1987	3,927,792	25,000	
Root Creek, Bolivar, NY	1986	1,591,436		
Slovan, PA	-	57,811		
Sykesville, PA	-	184,246	9,000	
Tarentum, PA	1964	136,591	24,600	
Tenmile Creek at Marianna, PA	1981	1,554,428		
West Little Pine Creek, Etna, PA	-	2,021,852	86,200	
Wilmore, PA	-	96,853	1,300	
Active:				
Ridgeway & Vicinity (on Clarion River) ²	1979	132,464		
Inactive:				
Black Fork at Hendricks, WV	1972	6,800		
Oakdale, PA	-	14,127		
Rouseville, PA	-	1,642		
Wallace, WV ¹	-	11,035		
Weston Mills, Olean, NY	-	50,100		
Weston Mills, Portville, NY	-	52,100		
Reservoirs				
Other:				
Rowlesburg Lake, WV	1977	2,873,799		

1. Lacks local support.

2. No longer economically justified.

TABLE 18-G

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Adena, OH (Short Creek)		Aug 5, 1977	13,452	
Allegany, NY Unit I (Allegheny River) ¹		Nov 17, 1986	4,100	
Allegany, NY Unit II (Five Mile Creek Area) ¹	1975	Nov 17, 1986	64,851	
Bellaire, OH		May 6, 1981	76,487	
Brackenridge, Tarentum and Natrona, PA ¹		Nov 17, 1986		
Brilliant, OH		Aug 5, 1977		
Brockway, PA (Allegheny River Basin)		Aug 5, 1977	194	
Clarington, OH		Aug 5, 1977		
Coraopolis, PA		Aug 5, 1977		
Dillonvale, OH (Short Creek)		Aug 5, 1977	16,884	
Eagle Creek Reservoir, OH		Jan 1, 1990	100,000	
Empire-Stratton, OH ¹		Nov 17, 1986	33,031	
Follansbee, WV		Aug 5, 1977		
Freeport, PA (Allegheny River)		Aug 5, 1977		
Industry, PA		Aug 5, 1977		
Kittanning, PA, part 11 (Allegheny River)		Nov 6, 1977		
Lake Chautauqua and Chadakoin River, NY ²	1965	Mar 2, 1970	190,722	
Lake Erie-OW Canal, OH and PA - 1935 Act	1972	May 6, 1981	1,342,000	
Leetsdale, PA		Nov 17, 1986		
Martins Ferry, OH ¹	1941	Nov 17, 1986	25,164	
McKees Rocks, PA		Oct 3, 1978		
Mingo Junction, OH		Aug 5, 1977		
Moundsville, WV ¹		Nov 17, 1986		
Muddy Creek Dam, PA ¹	1977	Nov 17, 1986	402,459	
Neville Island, PA ¹		Nov 17, 1986		
New Cumberland, WV		Aug 5, 1977		
New Kensington and Parnassus, PA ¹		Nov 17, 1986		
Pittsburgh, PA (Golden Triangle)		Oct 3, 1978		
Pittsburgh, PA (North Side)		Oct 3, 1978		
Pittsburgh, PA (The Strip)		Oct 3, 1978		
Powhatan Point, OH ¹		Nov 17, 1986		
Proctor, WV ¹		Nov 17, 1986		
Redbank Creek Lake, PA		Aug 5, 1977	156,377	
Rochester, PA ¹		Nov 17, 1986		
St. Marys, PA (Allegheny River Basin)		Aug 5, 1977	13,529	
Smith Ferry, PA		Aug 5, 1977		
Uniontown, PA	1956	Jan 1, 1990		
Warwood, WV ¹		Nov 17, 1986		
Wellsburg, WV		Aug 5, 1977	6,387	
West Bridgewater, PA		Aug 5, 1977		
Wheeling, WV ¹	1954	Nov 17, 1986	189,067	
Wheeling, WV (North Wheeling) ¹		Nov 17, 1986		
Wheeling, WV (Wheeling Island) ¹		Nov 17, 1986	21,700	
Wilcox, PA ³		Mar 5, 1955	16,761	
Woodlands, WV ¹		Nov 17, 1986		
Youghiogheny River, PA and MD (Canalization) ¹⁴	1971	Nov 17, 1986	232,863	

1. Deauthorized under Water Resources Act of 1986 (PL99-662)

2. Local interests failed to meet requirements of cooperation, authority for project expired March 2, 1970.

3. Local interests failed to meet requirements of cooperation, authority for project expired March 5, 1955.

4. Includes \$47,195 construction costs expended under previous project and \$1,700 O&M costs expended under previous project.

PITTSBURGH, PA, DISTRICT

TABLE 18-H

ALLEGHENY RIVER, PA, LOCKS AND DAMS

(See Section 1 of Text)

No	Miles Above Mouth	Nearest Town	Dimensions		Upper Lift at Normal Pool Level	Normal Pool Elevation (feet, mean sea Level)	Depth on Miter Sills at Normal Pool Level'		Character of Foundation		Kind of Dam	Type of Construction		Percent Complete	Year Open to Nav	Actual Cost
			Width of Chamber (Feet)	Avail Length to Full Width (Feet)			Lower (Feet)	Upper (Feet)	Lock	Dam		Lock	Dam			
2	6.7	Aspinwall, PA	56	360	11.0	721.0	12.0	10.9	Rock	Rock	Fixed	Concrete	Concrete	100	1934 ²	\$1,763,485
3	14.5	Cheswick, PA	56	360	13.8	734.8	10.8	11.8	Rock	Pile-Rock	Fixed	Concrete	Concrete	100	1934 ²	1,875,665
4	24.2	Natrona, PA	56	360	10.6	745.4	10.0	8.5	Rock	Rock	Fixed	Concrete	Concrete	100	1927	1,707,690
5	30.4	Freeport, PA	56	360	11.6	757.0	10.5	10.3	Piling	Crib-Pile	Fixed	Concrete	Concrete	100	1927	1,940,537
6	36.3	Clinton, PA	56	360	12.4	769.4	10.6	10.8	Rock	Crib-Pile	Fixed	Concrete	Concrete	100	1928	1,523,959
7	45.7	Kittanning, PA	56	360	13.0	782.4	9.8	10.9	Piling	Steel Sheet Piling	Fixed	Concrete	Concrete	100	1930	1,460,008
8	52.6	Templeton, PA	56	360	17.8	800.2	10.4	13.8	Rock	Rock	Fixed	Concrete	Concrete	100	1931	2,848,920
9	62.2	Rimer, PA	56	360	22.0	822.2	10.5	11.3	Rock	Rock	Fixed	Concrete	Concrete	100	1938	2,510,373
Total																15,630,637
Abandoned lock and dam 1																591,187
Abandoned lock and dam 2																544,929
Abandoned lock and dam 3																310,103
Demolishing old dam 1																26,001
Dredging channel																1,055,003
Total																\$18,157,860

1. All depths as shown are on guard sills and are controlling depth.

2. Dates shown represent replacement structures.

REPORT OF THE CHIEF OF ENGINEERS FOR CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 18-I

MONONGAHELA RIVER, PA AND WV, LOCKS AND DAMS

(See Section 3 of Text)

No	Miles Above Mouth	Nearest Town	Dimension		Lift at Normal Pool Level (Feet)	Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills at Normal Pool Level ¹		Character of Foundation		Kind of Dam	Type of Construction		Per cent Complete	Year opened to Navigation	Actual Cost
			Width of Chamber (Feet)	Length to Full Width (Feet)			Lower	Upper	Lock	Dam		Lock	Dam			
2	11.2	Braddock, PA	56	360	8.7	718.7	16.0	16.0	Rock	Crib Pile	Fixed	Concrete	Concrete	100	1953 ²	\$99,920,022 ⁵⁷
			110	720												
3	23.8	Elizabeth, PA	56 ³	360	8.2	726.9	11.6	11.9	Rock	Crib Pile	Fixed	Concrete	Concrete	100	1953 ²	49,493,165 ⁵⁸
				720												
4	41.5	Charleroi, PA	84 ³	360	16.6	743.5	10.7	20.0	Piles	Piles	Gated	Concrete	Concrete	100	1932 ²	51,598,481 ⁵⁶
				720												
--	61.2	Maxwell Locks and Dam Maxwell, PA	84 ³	720	19.5	763.0	15.0	20.5	Rock	Rock	Gated	Concrete	Concrete	100	1964 ²	30,110,889 ⁵
--	82.2	Grays Landing Lock and Dam, PA	84	720	15.0	778.0	18.0	26.0	Rock	Rock	Fixed	Concrete	Concrete	83	1994	175,502,215 ⁹
--	90.8	Point Marion Lock and Dam, PA	84	720	19.0	797.0	16.2	16.2	Rock	Rock	Gated	Concrete	Concrete	10	1993 ²	118,625,253 [#]
--	102.0	Morgantown Lock and Dam, PA	84	600	17.0	814.0	14.5	17.8	Rock	Rock	Gated	Concrete	Concrete	100	1950 ²	8,778,000 ⁵
--	108.0	Hildebrand Lock and Dam, 6 miles Morgantown, PA	84	600	21.0	835.0	15.0	14.0	Rock	Rock	Gated	Concrete	Concrete	100	1959 ²	12,506,829 ⁵
--	115.4	Opekiska Lock and Dam, 13.4 miles Morgantown, PA	84 ²	600	22.0	857.0	14.0	17.8	Rock	Rock	Gated	Concrete	Concrete	100	1964 ²	25,179,622 ⁵
Marine Ways, etc.																250,000
Abandoned lock and dam 1																1,019,907 ⁵
Abandoned lock and dam 4																780,816 ⁵
Abandoned lock and dam 5																1,074,812 ⁵
Abandoned lock and dam 6																770,449 ⁵
Abandoned lock and dam 7																2,853,580 ⁵
Abandoned lock and dam 8																245,900 [#]
Abandoned lock and dam 9																191,000 ⁵
Abandoned lock and dam 10																210,445 ⁵
Abandoned lock and dam 11																227,668 ⁵
Abandoned lock and dam 12																200,550 ⁵
Abandoned lock and dam 13																190,691 ⁵
Abandoned lock and dam 14																210,127 ⁵
Abandoned lock and dam 15																175,829 ⁵
Dredging Channel																587,899 ⁵
Total																580,704,149 ⁵

TABLE 18-I**MONONGAHELA RIVER, PA AND WV, LOCKS AND DAMS****(See Section 3 of Text)**

-
- | | |
|---|---|
| <p>1. All depths as shown are on guard sills and are controlling depth.</p> <p>2. Dates shown for locks and dams number 2 to 8 inclusive, represent reconstruction.</p> <p>3. 2 Chamber.</p> <p>4. Includes \$3,322,057 for raising crest of dam, (1958-9), \$2,086,438 for original reconstruction (1923-6), \$618,758 AE&D costs for replacement of lock, and \$112,667,403 for replacement of lock (\$56,215,160 CG funds; \$56,452,243 from Inland Waterways Trust Fund).</p> | <p>5. Actual cost may include estimated costs which have been footnoted as necessary.</p> <p>6. Includes \$2,173,767 for original reconstruction (1931-2), and \$15,080,304 for reconstruction of dam (1963-7).</p> <p>7. Includes \$16,967,114 for reconstruction of locks.</p> <p>8. Includes \$15,857,000 for major rehabilitation.</p> <p>9. Includes AE&D costs for proposed lock (\$803,000) and \$85,771,413 expended for CG, \$86,032,515 for IWTF.</p> <p>10. Includes \$213,776 original project and \$2,639,804 for reconstruction (1925).</p> |
|---|---|

**TABLE 18-J MONONGAHELA RIVER, PA AND WV:
TOTAL COSTS OF EXISTING PROJECT TO END OF FISCAL YEAR
(See Section 3 of Text)**

Funds	New Work	Operations and Maintenance, General	Total
Regular	\$580,704,149 ¹³	\$340,221,742 ²	\$920,925,891 ¹²⁵
Maintenance and Operation		452,623	452,623
Public Works Acceleration Exec		22,549	22,549
Total	\$580,704,149¹³	\$340,696,914²	\$921,401,063¹²⁵

1. Includes \$5,420,541 for new work for previous projects.

2. Includes \$20,446,587 expended between July 7, 1897 and June 30, 1937, on operation and care of works of improvement under revisions of permanent appropriation for such purposes and excludes \$742 for maintenance of previous projects.

3. Includes \$15,857,000 for major rehabilitation of L/D 3.

**TABLE 18-K OHIO RIVER BASIN (PITTSBURGH DISTRICT): RESERVOIRS
(See Section 23 of Text)**

Tributary Basin and Reservoir	Stream	Total Cost
Allegheny:		
Conemaugh River, PA	Conemaugh River	\$46,012,411
Crooked Creek, PA	Crooked Creek	4,482,933
East Branch Clarion River, PA	Clarion River	9,539,586
Kinzua Dam and Allegheny Reservoir, PA and NY	Allegheny River	112,226,076
Loyalhanna, PA	Loyalhanna Creek	5,727,531
Mahoning Creek, PA	Mahoning Creek	7,144,973
Tionesta, PA	Tionesta Creek	7,792,378
Union City, PA	French Creek	14,559,800
Woodcock Creek, PA	Woodcock Creek	20,545,065
Beaver:		
Berlin, OH	Mahoning River	8,739,987
Michael J. Kirwan, OH	Mahoning River	17,376,097
Mosquito Creek, OH	Mosquito Creek	4,253,029
Shenango River, PA and OH	Shenango River	40,217,201
Monongahela:		
Stonewall Jackson Lake, WV	West Fork River	211,439,567
Youghiogheny River, PA and MD	Youghiogheny River	12,521,167

1. Includes \$2,921,000 for dam rehabilitation.

2. Actual cost. Latest cost estimate (1991) is \$231,000,000.

TABLE 18-L INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(See Section 30 of Text)

Project	Date of Inspection	Project	Date of Inspection
Amsterdam, OH	Apr 1998	Marianna, PA	Jun 1999
By Rum PA	Oct 1999	Millvale, PA	Mar 1998
Bolivar, NY	May 1999	Oil City	
Bradford, PA	Apr 1999	Ice Control Structure,	
Brookville, PA	Oct 1999	Allegheny River, PA	May 1999
Buckhannon, WV	Jun 1999	Oil City LPP- (Dike), PA	May 1999
Burgettstown-Slovan, PA	Apr 1999	Olean, NY	Jun 1999
Butler, PA	Apr 1998	Portage, PA	Oct 1999
Charters Creek, PA		Portville, NY	Jun 1999
Cannonsburg-Houston Reach	Mar 1999	Reynoldsville, PA	Apr 1998
James G. Fulton Reach	Nov 1998	Ridgway, PA	May 1999
Colliers, WV	Sep 1994	Salamanca, NY	Jun 1999
DuBois, PA	Oct 1998	Stonewood-Nutter Fort, WV	Jun 1992
Eldred, PA	Apr 1987	Sykesville, PA	Oct 1998
Etna, PA	Mar 1998	Tarentum, PA	Sep 1997
Friendsville, MD	Apr 1999	Turtle Creek, PA	Apr 1999
Granvill, PA	Apr 1999	Washington, PA	Apr 1999
Johnsonburg, PA	May 1999	Wellsville, OH	Sep 1998
Kittaning, PA	Apr 1997	Weston, WV	Oct 1996
Otrobe, PA	Sep 1998	Wilmore, PA	Oct 1998
Leetonia, OH	May 1998	Youngstown, OH	May 1998

TABLE 18-M FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION
(See Section 32 of Text)

Flood Control Activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (preauthorization)	
Project/Study Identification	Fiscal Year Costs
Borough of Dawson, PA	7,705
Brownsville, PA	1,146
Cambridge Springs, PA	30,697
Cheat River Basin FWS, WV	6,204
City of Duquesne, Sewage Treatment Plant, PA	1,482
Coordination Account (Sec 205)	10,043
Follensbee, NY	9,072
Saxman Run, Westmoreland County, PA	316
Tawney Run Creek, PA	<u>48,114</u>
Total Cost for Current Fiscal Year:	\$114,780
Emergency Streambank Protection - Section 14 of the 1846 Flood Control Act, Public Law 526, 79th Congress	
Project/Study Identification	Fiscal Year Costs
Access Road, Tygart Lake	21,027
Allegheny River, First St., Ford City, PA	51,624
Bear Creek, Walnut St., PA Friendsville, MD	10,909
Briggs Street, Borough of Allenport, PA	13,007
Brush Creek, Jeannette, PA	506
Buffalo Creek, Freeport, PA	(4,594)
Center Treatment Plant, Elkhorn Run, PA	13,450
Cheat River, Sadler Street, Springhill Twp, PA	26,453
Conneaut Lake, PA	9,102
Coordination Account (Sec 14)	11,295
Diel South Road (Hwy 139 A) Mahoning Riv	2,566
Kiskiminetas River, STP, Avonmore, PA	8,047
Lincoln Borough, PA	24,592
Little Plum Creek, Municipal Bldg, PA	22,721
McCandless, PA	14,375
Moon Treatment Plant, Elkhorn Run, PA	12,363
Monongahela River, Sewage Treatment Plant, Point Marion, PA	202
Monongahela River, Water Street, Point Marion, PA	186
Nickleplate Rd, French Creek, Fairfield	15,167
Pricketts Fort, WV	24,525
Shinnston, WV	22,698
Ten Mile Creek, Washington County, PA	126,303
Worthington, WV	<u>19,384</u>
Total Cost for Current Fiscal Year:	\$445,907

OHIO RIVER

For actual construction of locks and dams, and operation and care of completed structures, the Ohio River is divided into three sections under immediate supervision and direction of District Engineers at Pittsburgh, Huntington, and Louisville. Pittsburgh section extends 127 miles from head of river at Pittsburgh, PA, to a point immediately upstream from New Martinsville, WV, and includes Emsworth, Dashields, Montgomery, New Cumberland, Pike Island, and Hannibal Locks and Dams. Huntington section

extends 311 miles from mile 127 to 438 immediately upstream from Foster, KY, and includes Willow Island, Belleville, Racine, Robert C. Byrd, Greenup, and Captain Anthony Meldahl Locks and Dams. Louisville section extends 543 miles from mile 438 to mouth of river, and includes Markland and McAlpine Locks and Dams (with Louisville and Portland Canal), Cannelton, Newburgh, John T. Myers, and Smithland Locks and Dams, and Locks and Dams 52 and 53.

Improvements

Navigation

1. Construction of locks and dams on
Ohio River.....19-1
2. Open channel work, Ohio River.....19-4

Tables

Table 19-A	Cost and Financial Statement.....	19-5
Table 19-B	Authorizing Legislation.....	19-6
Table 19-C	Not Applicable	
Table 19-D	Not Applicable	
Table 19-E	Not Applicable	

Table 19-F	Not Applicable	
Table 19-G	Not Applicable	
Table 19-H	Construction of Locks and Dams On Ohio River, Total Cost of Existing Project.....	19-7
Table 19-I	Federal Energy Regulatory Commission Licenses of Locks and Dams, Ohio River.....	19-7
Table 19-J	Ohio River Locks and Dams Statistics.....	19-8

Navigation

1.CONSTRUCTION OF LOCKS AND DAMS ON OHIO RIVER

Location. Ohio River is formed by junction of Allegheny and Monongahela Rivers at Pittsburgh, PA, and flows generally southwesterly for 981 miles to join Mississippi River near Cairo, IL. For description of river see page 1227, 1932 Annual Report.

Previous Projects. For details see page 1907 of Annual Report for 1915.

Existing project. Provides for improvement of entire river by construction of locks and dams to provide channel depth of 9 feet and for widening Louisville and Portland Canal at Louisville, KY. Project provides for two locks (110 feet by 600 feet and 56 feet by 360 feet) at Emsworth, Dashields and Montgomery. The dams at Emsworth and Montgomery are movable crests while at Dashields it is a fixed crest. Below Montgomery Locks and Dam, the existing project consists of fixed dams with movable crests with two locks (110 by 1,200 feet and

110 by 600 feet) at New Cumberland, Pike Island, Hannibal, Willow Island, Belleville, Racine, Robert C. Byrd, Greenup, Captain Anthony Meldahl, Markland, Cannelton, Newburgh, and John T. Myers; two locks 110 by 1,200 feet at Smithland; 110- by 1,200-foot temporary locks in addition to the existing locks at Locks and Dams 52 and 53, and reconstruction to provide a 110- by 1,200-foot lock in addition to existing locks and a fixed dam with two sections of movable crest at McAlpine Locks and Dam; widening Louisville and Portland Canal to 500 feet. Auxiliary lock 56 by 360 feet at McAlpine Locks and Dam has been inoperative since failure of downstream lock gates in December 1972. Rehabilitation of existing Locks and Dams 52 and 53 was started in September 1979 under the purview of Section 6, March 1909 Act. Mound City was also considered authorized under purview of 1909 Act, and preconstruction planning was performed in the period 1965 to 1972. The ruling of the U.S. District Court, District of Columbia, on September 6, 1974, with reference to Lock and Dam 26, Mississippi River, would also apply to this project. Consequently, it is no longer considered authorized. Operation and care of locks and

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

dams were included in project July 1, 1935, under provisions of Permanent Appropriations Repeal Act of June 26, 1934. Estimated Federal cost of new work, is \$3,371,707,275. Foregoing estimate does not include expenditures on previous projects. Various items previously included in this project are considered inactive or unnecessary and are excluded from foregoing cost estimate. See page 693, Annual Report, 1968, for items and estimated cost. Under authority of 1910 River and Harbor Act, Louisville and Portland Canal was widened to 200 feet; Locks and Dams 40 and 42 eliminated; Locks and Dams 1 and 2 replaced by Emsworth Locks and Dam; Lock and Dam 3 replaced by Dashields Locks and Dam; and Locks and Dams 4, 5, and 6 replaced by Montgomery Locks and Dam. Locks and Dams 24, 25, and 26 were replaced by Robert C. Byrd Locks and Dam authorized by August 30, 1935, Act, and constructed under project for improving lower Kanawha River. Locks and Dams 7, 8, and 9 were replaced by New Cumberland Locks and Dam; Locks and Dams 10 and 11 were replaced by Pike Island Locks and Dam; Locks and Dams 12, 13, and 14 were replaced by Hannibal Locks and Dam; Locks and Dams 15, 16, and 17 were replaced by Willow Island Locks and Dam; Locks and Dams 18, 19, and 20 were replaced by Belleville Locks and Dam; Locks and Dams 21, 22, and 23 were replaced by Racine Locks and Dam; Locks and Dams 27, 28, 29, and 30 were replaced by Greenup Locks and Dam; Locks and Dams 31, 32, 33, and 34 were replaced by Captain Anthony Meldahl Locks and Dam; Locks and Dams 35, 36, 37, 38, and 39 were replaced by Markland Locks and Dam; the Louisville and Portland Canal at McAlpine Locks and Dam was widened to 500 feet. Locks and Dams 43, 44, and 45 were replaced by Cannelton Locks and Dam; Locks and Dams 46 and 47 were replaced by Newburgh Locks and Dam; Locks and Dams 48 and 49 were replaced by John T. Myers Locks and Dam, and Locks and Dams 50 and 51 were replaced by Smithland Locks and Dam, as modifications to existing project under purview of Section 6, March 3, 1909 Act, reducing total number of structures to 20. The Water Resources Development Act of 1974 combined the Newburgh Bank Protection Works project with the Newburgh Locks and Dam project. A December 1981 Act established the Falls of the Ohio National Wildlife Conservation Area near McAlpine Locks and Dam to protect and preserve existing fossilized coral and a diversity of wildlife. A November 17, 1988 Act authorized a replacement structure for Locks & Dams 52 & 53 at Olmsted, IL. A November 28, 1990 Act authorized an interpretive center at the Falls of the Ohio National Wildlife Conservation Area near McAlpine Locks & Dam and a replacement of the existing 110 foot x 600 foot lock at McAlpine Locks & Dam, IN & KY. Table 19-J contains data relative to various features of locks and dams included in existing

project. For list of principal towns and cities along Ohio River with their mileage below Pittsburgh, PA, see page 1060, 1962 Annual Report. See Table 19-I for licenses.

Navigation system of 20 locks and dams is in operation and 9-foot navigation throughout length of river is generally available at all times. At certain unstable bars project depth is maintained by dredging, supplemented by contraction works. (See "Open Channel Work, Ohio River.") Table 19-J shows cost and year completion of locks and dams now in operation. Existing project does not provide adequate facilities for present day navigation due to obsolescence of structures. Since repair and modernization of these facilities would be extremely costly, replacement and reconstruction is being accomplished as rapidly as funds are made available for the purpose. Construction of lock and dam replacement program was initiated in Fiscal Year 1955. New Cumberland, Pike Island, Hannibal, Willow Island, Belleville, Racine, Greenup, Captain Anthony Meldahl, Markland, McAlpine, Cannelton, Newburgh, John T. Myers, and Smithland replacement locks and dams are in operation, replacing 39 old low-lift locks and dams. For total cost of existing project, see Table 19-H.

Terminal facilities. Modern public terminals, with warehouses, equipped with operating machinery for transferring materials, have been constructed by private interests at some of the larger cities and towns. A list of terminals on Ohio River is revised annually and can be obtained from Division Engineer, U.S. Army Engineer Division, Ohio River, Cincinnati, Ohio.

Operations during fiscal year. New work by contract and hired labor:

Greenup Locks and Dam: WRDA 2000 authorized improvements to Greenup L&D, KY. A Preconstruction Engineering and Design study is underway consisting of preparation of plans and specifications for a mooring facility, geotechnical investigations, design report for the lock extension, mitigation model studies, and archaeological, historical, cultural, and biological work. Studies are scheduled for completion in 2004.

Robert C. Byrd Locks and Dam: The existing project, constructed under project for improving lower Kanawha River, was placed in operation in August 1937. The dimensions of the existing locks chambers and poor approach conditions, particularly to downstream traffic, have created a higher than normal accident rate to the structure with corresponding hazards and delays to traffic. The Water Resources Development Act of 1976 authorized Phase I studies for 1,200-foot locks in a bypass canal. These studies are complete.

Initial Construction, General funds for the continuation of Engineering activities were received in September 1985. Real estate acquisition is complete.

OHIO RIVER

The contract for the Locks was awarded in October 1987 and is complete. The contract for the Dam Rehabilitation was awarded in June 1993 and is 99 percent complete. The total estimated cost of the project is \$381.0 million, which is 50 percent federal cost and 50 percent Inland Waterways Trust Fund cost.

Falls of the Ohio National Wildlife Conversation Area Was authorized by 97-137 on December 29, 1981 and modified by Public Law 101-640 on November 28, 1990 to design and construct an interpretive center. The Conservation Area will protect 1,000 acres, which consists of birdlife and other wildlife. Planning consisted of efforts to define facilities to be cost shared with local interests. All Real Estate tracts have been acquired and one tract remains in a condemnation trial. A construction contract to construct the cost-shared recreation facilities was awarded on 30 September 1993, and completed in February 1995.

John T. Myers Locks and Dam: Construction was initiated in June 1965. All work is complete. An extension of the existing 600-foot x 110-foot auxiliary lock chamber to a 1,200-foot x 110-foot chamber was authorized by the WRDA of 2000 in Public Law 106-541 on 11 December 2000. This effort will give the J.T. Myers project twin 1,200-foot locks for inland navigation tow traffic.

McAlpine Locks and Dam: Project is complete except for alteration of lift section of railroad bridge that spans the upper end of the Louisville and Portland Canal which work is presently deferred. A replacement of the existing 110 foot x 600 foot lock with a new 100 foot x 1,200 foot lock was authorized by WRDA of 1990 in Public Law 101-640. Construction has been initiated. A contract to construct a cofferdam and demolish the 360 foot and 600 foot locks was awarded in May 2000 and is 5 percent complete. \$60,316,000 has been expended for the lock replacement and ancillary efforts.

Olmsted Locks & Dam: A replacement structure for Locks and Dams 52 & 53 was authorized by the WRDA of 1988 in Public Law 100-676 on 17 November 1988. Planning Engineering and Design continued. A contract to construct the lock was awarded 6 December 1995 and has advanced to 99 percent completion. A contract to construct the approach wall was awarded 26 August 1999 for \$98,980,610 and advanced to 40 percent completion. A contract was awarded for the wash down barge on 27 Jan 00 for \$1,418,230 and advanced to 82% complete. A contract to relocate the Village of Olmsted's Boat Ramp was awarded June 4, 2001, for \$1,358,242 and advanced to 100% completion. A contract for the Operating and Maintenance Bulkheads was awarded on September 27, 2001, for \$24,156,000. In FY 01, \$57,775,169 was expended on the Olmsted project.

Emsworth Locks and Dam: Efforts during FY 01 included on going work on the contract for replacement of Vertical Lift Gate #7 and Hoist Equipment, contract amount \$2,697,000; construct should be completed during FY 02. Replacing poiree dam boxes in the river lock chamber with hired labor; \$92,045. Dewatering the river lock chamber to repair miter gates and filling valves with hired labor; \$1,430,000. Repairs to the poiree dam sill in the land chamber with hired labor; \$225,169. Emergency repairs to lift gates for the dam by hired labor, \$26,195.

Montgomery Locks and Dams: Efforts during FY 01 included repairs to the middle wall emptying valve with hired labor, \$509,953.

New Cumberland Locks and Dam: Efforts during FY 01 included the award of a contract for Fabrication & Delivery of 110' Miter Gates, contract amount \$3,873,853. Miter gates contract will be completed during FY02.

Pike Island Locks and Dam: Efforts during FY 01 included repairing the land wall emptying valve with hired labor, \$57,778.

Hannibal Locks and Dam: Efforts during FY 01 included dewatering and repairing land lock chamber with hired labor, \$1,785,214.

Operation and maintenance, general. Locks and dams operated as required and necessary repairs and improvements made thereto and to operator's quarters, grounds and esplanades. Costs were \$17,528,533 for Huntington District, \$34,546,924 for Louisville District and \$18,734,043 for Pittsburgh District.

2. OPEN CHANNEL WORK, OHIO RIVER

Location. Under jurisdiction of district engineer in whose district work is located. Portion of river included in project extends 974.7 miles from head of river at Pittsburgh, PA, to mouth of Cache River (Mound City, IL). Open channel improvement from mouth of Cache River to mouth of Ohio River is under jurisdiction of Mississippi River Commission.

Existing Projects. Before completion of canalization project, no project depth had been fixed by Congress under project for open channel work; but, in order to properly aid packet and barge navigation, it was necessary to secure a low-water channel with a minimum depth of 4 to 6 feet, and a width, depending upon difficulty of running channel, of 400-600 feet; also, to permit movement of large coal tows, which movement occurred at stages of water exceeding 10 feet, it was necessary to remove points of projecting bars which formed at various locations along river. Accomplishment of this purpose involved concentration of current by closing back channels at islands with low dams, contraction and straightening wide open channels by low dikes, dredging bars and shoals, and removal of snags and wrecks. Incidental to direct improvement of Ohio River is construction and maintenance of ice piers as required for protection of river craft. Stage of extreme high water on Ohio River varies from 46 feet at Pittsburgh, PA, to 80 feet at Cincinnati, OH, with 57.2 feet at Louisville, KY (head of falls, 53.8 feet at Evansville, IN, and 59.5 feet at Cairo, IL (mouth of river). Estimated cost of new work is \$16.16 million, exclusive of following items which are considered inactive: Ice piers authorized by 1927 River and Harbor Act; reforestation of sloughs of Kentucky Peninsula near Evansville, IN, authorized by 1930 River and Harbor Act; dredging to widen channel at certain points; and placing revetment at various points. Estimated cost of these items is \$6,565,000. Operation of snag boats on Ohio River below Pennsylvania State line was included in project July 1, 1935, under provisions of Permanent Appropriations Repeal Act of June 26, 1934. See Table 19-B for authorizing legislation.

New work under this project is substantially complete, since it is not anticipated that work on inactive portion of project will be accomplished. In addition to dredging, local stabilization of channel has been effected at various points by construction of dikes and revetment. Work, which remains, consists of dredging to widen channels at certain points to project depth.

Local cooperation. River and Harbor Act of January 21, 1927, authorizing construction of ice piers for general open channel work, imposes condition that

before work is begun on any pier, local interests convey to the United States free of cost such riparian rights as may be deemed necessary in connection with the improvements at locality (H. Doc. 187, 67th Congr., 2nd Sess.). Existing ice piers are adequate for present purposes and local cooperation is not needed since no additional construction is under consideration. River and Harbor Act of July 3, 1930, provides for reforestation of sloughs of Kentucky Peninsula and bank protection and that no expense shall be incurred by the United States for acquiring lands required for purpose of this improvement (H. Doc. 409, 69th Congr., 1st Sess.). However, since no serious overbank erosion has occurred since bank revetment in 1933-34, reforestation is not considered justifiable at this time and no local cooperation is required.

Operations during fiscal year. Operation and maintenance, general: Dredging was done where required to provide an adequate and dependable channel of project depth at minimum pool conditions. Dikes and revetments were maintained and routine work of maintaining navigation aids, removing snags, making channel studies, hydrographic surveys and mapping was performed as required. Channel soundings, hydrographic surveys, steam gaging operations, channel inspections and aids to navigation, and miscellaneous inspections and reports cost \$2,081,846. In FY 01 dredging by hired labor on the Ohio River totaled 10,500 cubic yards at \$37,500. Dredging by contract: Huntington District 194,005 cubic yards at \$1,067,867. Louisville District 674,354 cubic yards at \$1,998,481.

OHIO RIVER

**TABLE
19-A****COST AND FINANCIAL STATEMENT**

See Section in Text Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep 30, 2001	(footnotes)
1. Construction of Locks and Dams on OH River	New Work						
	Approp.	\$90,840,000	\$73,057,000	\$103,603,000	\$87,527,000	\$2,329,734,761	1 3 5 10 17 21 1 3 6 11 12 15 16 18
	Cost	90,492,313	73,941,293	104,909,063	87,242,902	2,328,990,991	22 23
	Maint.						
	Approp.	49,786,050	54,060,851	71,813,499	70,560,691	1,309,644,739	2 4 19
	Cost	49,562,113	55,864,485	71,541,494	70,809,500	1,309,310,309	2 13 14 19 20
	Rehab.						
	Approp.	0	0	0	0	82,972,138	
	Cost	0	0	0	0	82,972,138	
	Rehab.(O&M)						
	Approp.	0	0	0	0	33,914,252	
	Cost	0	0	0	0	33,914,252	
2. Open Channel Work, Ohio River	New Work						
	Approp.	-	-	-	-	15,962,260	8
	Cost	-	-	-	-	15,962,260	8
	Maint.						
	Approp.	6,250,100	6,571,448	6,861,375	5,395,023	180,322,835	7 9
	Cost	5,737,473	7,261,154	6,837,404	5,148,194	180,058,965	7 9
	Rehab.						
	Approp.	-	-	-	-	944,649	
	Cost	-	-	-	-	944,649	

- 1 Includes \$17,003,761 for previous 6-foot canalization project.
- 2 Includes \$36,943,217 expended from 1885 to 1937 on operation and care of work of improvement under provisions of permanent indefinite appropriations for such purposes.
- 3 Includes \$215,812 public works acceleration, executive 1963.
- 4 Includes \$38,766 public works acceleration, executive 1963.
- 5 Excludes \$251,769 contributed funds for new work.
- 6 Excludes \$250,102 contributed funds for new work.
- 7 Excludes \$1,621,349 expended in operation of snag boats under provisions of permanent indefinite appropriation for such purposes, and \$267 transferred to project without reimbursement.
- 8 Includes \$1,040,236 Public Works funds.
- 9 Includes \$1,000 for removal of obstructions in Licking River under authority of Section 3, R&H Act of 1930.
- 10 Includes \$100,000 placed in FY 1971 Budget Reserve.
- 11 Excludes \$3,899 transferred from project without reimbursement.
- 12 Surplus property valued at \$3,553 transferred to project without reimbursement.

- 13 Excludes \$2,140 transferred to project without reimbursement.
- 14 Excludes surplus property valued at \$73,832 transferred to project without reimbursement.
- 15 Includes \$87,724,158 prior construction cost.
- 16 Excludes surplus property valued at \$297,385 transferred to project without reimbursement.
- 17 Includes \$549,392 Code 710 Funds, \$572,162 Code 711 Funds, \$532,677 Code 712 Funds and \$1,759,812 Code 713 Funds.
- 18 Includes \$549,392 Code 710 Funds, \$342,162 Code 711 Funds, \$532,677 Code 712 Funds and \$1,989,812 Code 713 Funds.
- 19 Includes \$2,158,073 Funds provided from The Productive Employment Appropriations Act of 1983 (PL 98-8).
- 20 Includes \$920,945 cost for operations & care of previous projects.
- 21 Includes \$473,395,500 Inland Waterways Trust Funds.
- 22 Includes \$473,015,720 Inland Waterways Trust Funds.
- 23 Excludes \$9,525,437 settlement from the U S Treasury Dept. Judgement Fund.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 19-B		Authorizing Legislation	
See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
2.		Open Channel Work, Ohio River	
March 3, 1827		Project adopted by this act originally covered entire length of Ohio River from its mouth near Cairo to Pittsburgh, a distance of 981 miles. It provided for removal of all obstructions, which tend to endanger steamboat navigation.	
January 21, 1927		Construct ice piers as a part of allotted from appropriations for general open channel work.	H. Doc. 187, 67th Cong., 2 nd Sess.
July 3, 1930		Reforestation of sloughs on Kentucky Peninsula near Evansville, IN, and a 200-foot strip along bank and for bank protection at an estimated cost of \$200,000.	H. Doc. 409, 69th Cong., 1 st Sess.
July 3, 1958		Act of March 3, 1827, modified to include maintenance of existing Licking River Channel within lower 3-mile limit of river slack water, at an estimated increase of \$1,000 in cost of average annual maintenance.	H. Doc. 434, 84th Cong., 2 nd Sess.
		Locks and Dams, Ohio River	
December 29, 1981		Act of December 29, 1981, established the 1,000-acre Falls of the Ohio National Wildlife Conservation Area, at a cost not to exceed \$300,000.	H.R. 2241, PL97-137, Title II, 95 Stat. 1710
November 17, 1988		Act of November 17, 1988 authorized a replacement structure for Locks and Dams 52 and 53 at Olmsted, Illinois.	PL 100-676, 100th Cong., 2nd Sess.
November 28, 1990		Act of November 28, 1990, modified PL 97-137 by authorizing an interpretive center at Falls of the Ohio National Wildlife Conservation Area, at an estimated total cost of \$3,200,000.	PL 101-640, 101st Cong., 2nd Sess.
November 28, 1990		Act of November 28, 1990 authorized a modernization of the existing 110 foot x 600 foot lock at McAlpine Locks and Dam, Indiana and Kentucky at a total cost of \$219,600,000 with one-half appropriated from the Treasury and one-half from the Inland Waterways Trust Fund.	PL 101-640, 101st Cong., 2nd Sess.
October 31, 1992		Act of October 31, 1992 renamed the Gallipolis Locks and Dam to the Robert C. Byrd Locks and Dam.	PL 102-580, 102nd Cong., 2nd Sess.
October 1, 1996		Act of October 1, 1996 renamed the Uniontown Locks and Dam to the John T. Myers Locks and Dam.	PL 104-303, 104 th Cong.
October 31, 2000		Act of October 31, 2000 authorized a modernization of the existing 110' x 600' lock at John T. Myers Locks and Dam, Indiana and Kentucky at a total cost of \$181,700,000 with one-half appropriated from the Treasury and one-half from the Inland Waterways Trust Fund.	PL 106-541, 106 th Cong.
October 31, 2000		Act of October 31, 2000 authorized a modernization of the existing 110' x 600' lock at Greenup Locks and Dam, Kentucky and Ohio, at a total cost of \$175,500,000 with one-half appropriated from the Treasury and one-half from the Inland Waterway Trust Fund.	PL 106-541, 106 th Cong.
October 31, 2000		Act of October 31, 2000 authorized projects for ecosystem restoration on Ohio River Mainstem, Kentucky, Illinois, Indiana, Ohio, West Virginia and Pennsylvania at a total cost of \$307,700,000 with an estimated Federal cost of \$200,000,000 and an estimated non-Federal cost of \$107,700,000.	PL 106-541, 106 th Cong.

OHIO RIVER

Table 19-H **Construction of Locks and Dams on Ohio River**
Total Cost of Existing Project to September 30, 2001
(See Section 1 of Text)

Funds	Operations and Maintenance			Total
	New Work	General	Rehabilitation	
Regular	\$2,149,350,914	\$1,197,539,092	\$116,886,390	\$3,621,828,798
Public Works	3,258,368	0	0	3,258,368
Emergency Relief	1,198,837	19,000	0	1,217,837
Maintenance & Operation	0	3,039,789	0	3,039,789
Public Works Acceleration	215,812	38,766	0	354,578
Executive 1963	0	0	0	0
Total	\$2,241,266,833 ³	\$1,271,446,147 ^{1 2}	\$116,886,390 ⁴	\$ 3,629,599,370

¹Excludes \$36,943,217 expended from 1885 to 1937 under permanent indefinite appropriation.

²Excludes \$920,945 cost for operation and care of previous projects.

³Excludes \$87,724,158 prior construction cost.

⁴Includes \$33,914,252 cost for O & M Rehabilitation.

Note: All other cost variations are listed in the Footnotes of Table 19-A.

Table 19-I **Federal Energy Regulatory Commission Licenses**
At Locks and Dams, Ohio River

	Markland Dam	McAlpine Dam	Racine Dam	Greenup Dam	Hannibal Dam
F.E.R.C License	2,211	289:1,000	2,570	2,614	3,206
License	Public Service Co. of Indiana	Louisville Gas and Electric Co.	Ohio Power Co.	City of Vanceburg, Kentucky	City of New Martinsville, WV
Annual Charge	\$ 45,950	\$ 95,000	\$ 64,232	\$ 261,103	0
Collections to end of Fiscal Year 2000	\$1,606,316.64	\$9,480,353.94	\$2,100,382	\$4,673,677	\$197,589.03

Table 19-J

Ohio River Locks and Dams (See Section 1 of Text)

Lock And Dam	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills		Character of Foundation		Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each Lock and Dam
							Upper (feet)	Lower (feet)	Lock	Dam			
1	-	Replaced	-	-	-	-	-	-	-	-	-	-	\$ 870,034
2	6.2	Emsworth Locks	110	600	18.0	710.0	17.0 ^{1 4}	12.9 ³	Rock	Rock	100	1921	43,347,635
14		and Dam, Emsworth, PA	56	360			15.5 ^{1 5}	12.9 ³		and Piles			
2	-	Replaced	-	-	-	-	-	-	-	-	-	-	976,767
3	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,144,588
	13.3	Dashields Locks	110	600									
		and Dam	56	360	10.0	692.0	13.4 ¹	17.5 ³	Rock	Rock	100	1929	37,447,328
15		1.6 miles below Sewickley, PA											
4	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,071,472
5	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,080,132
6	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,123,442
	31.7	Montgomery	110	600									
		Locks and Dam,	56	360	17.5	682.0	16.0 ¹	14.6 ³	Rock	Rock	100	1936	37,754,307
16		1.4 miles above Industry, PA							and Piles	and Piles			
7	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,075,000
8	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,167,456
	54.4	New Cumberland	110	1,200									
		Locks and Dam, Stratton, OH	110	600	20.5	664.5	7.0 ¹	14.8 ³	Rock	Rock	100	1959	39,099,688
9	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,177,100
10	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,138,000
11	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,162,165
	84.3	Pike Island Locks	110	1,200									
		and Dam, 2 miles upstream from Warwood, WV	110	600	21.0	644.0	17.0 ¹	18.0 ¹	Rock	Rock	100	1968	56,623,946
12	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,166,104
13	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,222,389
14	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,133,371
	126.4	Hannibal Locks	110	1,200									
		and Dam, 1.6 miles upstream from New Martinsville, WV	110	600	21.0	623.0	38.0	17.0	Rock	Rock	99	1972	87,902,000
15	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,180,478

Table 19-J
(continued)

Ohio River Locks and Dams
(See Section 1 of Text)

Lock And Dam	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation (feet, mean sea level)	<u>Depth on Miter Sills</u>		<u>Character of Foundation</u>		Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each Lock and Dam
							Upper (feet)	Lower (feet)	Lock	Dam			
16	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,275,532
	161.7	Willow Island Locks and Dam, 2.7 miles above Waverly, WV	110	1,200									
			110	600	20.0	602.0	35.0	15.0	Rock and Piles	Rock	100	1972	78,173,881
17	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,362,591
18	-	Replaced	-	-	-	-	-	-	-	-	-	-	927,091
19	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,213,848
20	-	Replaced	-	-	-	-	-	-	-	-	-	-	936,696
	103.9	Belleville	110	1,200									
		Locks and Dam, 0.3 mile below Reedsville, OH	110	600	22.0	582.0	37.0	15.0 ³	Rock and Piles	Rock	100	1968	62,591,255
21	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,484,562
22	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,218,798
23	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,851,488
	237.5	Racine Locks and Dam, 1.5 miles below Letart Falls, OH	110	1,200									
			110	600	22.0	560.0	18.0	15.0	Rock and Piles	Rock	100	1971	64,922,680
24	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,187,542
25	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,925,205
26	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,307,241
	279.2	Robert C. Byrd Locks and Dam, 0.7 mile below 6 Hogsett, WV											
		Robert C. Byrd Modernization	110	1,200	-	-	-	-	-	-	-	-	3,452,066
27	Rehab	Dam and New Lock	110	1,200	23.0	538.0	18.0	15.0	Rock	Rock	100	1992	362,398,705
17		27	-	Replaced	110	600	-	-	-	-	-	-	-
28	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,063,133
29	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,088,802
30	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,579,618
	341.0	Greenup Locks and Dam, 4.9 miles below Greenup, KY	110	1,200									
			110	600	30.0	515.0	18.0 ¹	13.0	Rock	Rock	100	1959	57,464,191
31	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,359,231
32	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,951,216
33	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,937,166

Table 19-J

Ohio River Locks and Dams

(continued)

(See Section 1 of Text)

Lock And Dam	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills		Character of Foundation		Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each Lock and Dam
							Upper (feet)	Lower (feet)	Lock	Dam			
34	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,437,057
	436.2	Captain Anthony	110	1,200									
		Meldahl Locks and Dam, 2.2 miles above Foster, KY	110	600	30.0	485.0	18.0 ¹	15.0	Rock	Rock	100	1962	74,188,216
35	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,894,942
36	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,704,535
37	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,297,924
38	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,857,040
	531.5	Markland Locks and Dam, 1 mile above Markland, IN	110	1,200									
			110	600	35.0	455.0	50.0	15.0	Rock	Piles	100	1963	63,019,403
39	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,222,448
40	-	Eliminated	-	-	-	-	-	-	-	-	-	-	
41	-	-	-	-	-	-	-	-	-	-	-	-	7,658,134
7		Falls of the Ohio, 1 mile above McAlpine	N/A	N/A					N/A	N/A	0	N/A	2,367,918
	604.0	McAlpine Locks and Dam	110	1,200		49.0	12.0						
			110	600	37.0	420.0	19.0	11.0	Rock	Rock	100	1961	105,960,277
7,8,19		(Reconstruction of Locks and Dam 41)	56	360			19.0	11.0					
42	-	Eliminated	-	-	-	-	-	-	-	-	-	-	
43	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,592,242
44	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,819,930
45	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,202,890
	720.7	Cannelton Locks	110	1,200	25.0	383.0	38.0	13.0	Rock	Rock	100	1972	99,032,866
10		and Dam,			110	600							
		3 miles above Cannelton, IN											
46	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,129,028
	776.1	Newburgh Locks and Dam, 16 miles above Evansville, IN	110	1,200									
			110	600	16.0	358.0	32.0	16.0	Rock	Pile	99	1975	104,496,840
47	-	Replaced	-	-	-	-	-	-	-	-	-	-	4,415,526
48	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,062,710

Table 19-J
(continued)

Ohio River Locks and Dams
(See Section 1 of Text)

Lock And Dam Lock	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills		Character of Foundation		Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each and Dam
							Upper (feet)	Lower (feet)	Lock	Dam			
49	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,325,964
	846.0	John T. Myers	110	1,200									
		Locks and Dam, 3.5 miles below Uniontown, KY	110	600	22.0	342.0	34.0	12.0	Rock	Rock	99	1975	102,190,120
50	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,571,762
51	-	Replaced	-	-	-	-	-	-	-	-	-	-	4,370,566
	918.5	Smithland Locks	110	1,200									
		and Dam, 2 miles above Smithland, KY	110	1,200	22.0	324.0	34.0	12.0	Rock	Rock	99	1980	273,725,470
	52	938.9	1.4 miles below	110	600	12.0	302.0	15.4	11.0	Pile	Pile	100	1928
11		Brookport, IL											
	938.9	1.4 miles below Brookport, IL (New lock)	110	1,200	12.0	302.0	15.4	11.0	Pile	Pile	100	1969	10,197,516
	964.4	Olmsted Locks &	110	1,200	21.0	300.0	18.0	18.0	Pile	Pile	48	2008	513,954,335
	18	Dam at Olmsted, IL											
53	962.6	10.8 miles	110	600	13.4	290.0	15.4	9.6 ⁹	Pile	Pile	100	1929	10,004,240
12		above Mound City, IL											
	962.6	10.8 miles above Mound City, IL (New lock)	110	1,200	13.4	290.0	15.4	9.6	Pile	-	100	1982	38,570,920
	974.2	Mound City	-	-	-	-	-	-	-	-	-	-	1,539,470
	13	Lock and Dam, 1 mile below Mound City, IL											
TOTAL													\$2,438,863,976 20

Table 19-J Ohio River Locks and Dams
(Continued)

Footnotes

- ¹ Depths are on emergency dam foundation and recontrolling depths.
² Change from fixed dam to lift-gate dam completed in 1938.
³ Depths are on poiree dam foundation and are controlling depths.
⁴ Land chamber.
⁵ River chamber.
⁶ Roller-gate dam. Cost not included in total. Constructed under project for improving lower Kanawha River.
⁷ Lock and Dam 41 completed with 110- by 600-foot lock in 1921. Completed with new dam and raised canal and lock wall in 1928. Auxiliary 56- by 360-foot lock constructed in 1929-30. Reconstruction and modernization began 1956, renamed McAlpine Locks and Dam in 1960. Operation of auxiliary lock suspended in 1971.
⁸ Existing structures are complete except for deferred alteration of railroad bridge. Construction of the new 110 foot x 1,200 foot lock has not yet begun.
⁹ Dam below not yet constructed. Depth on lower miter sill at lower water.
¹⁰ Excludes \$2,219,975 payment for settlement of damage to dam caused by barge accident in April 1978.
¹¹ Major rehabilitation (\$8,876,000) initiated in FY 79 is complete.

- ¹² Major rehabilitation (\$4,593,572) initiated in FY 79 is complete.
¹³ For preconstruction planning 1965 to 1972. No longer considered authorized. (See Section 1 of Text.)
¹⁴ Includes \$37,485,870 for major rehabilitation completed in FY 84
¹⁵ Includes \$33,914,252 for major rehabilitation completed in FY 90 (O&M funds).
¹⁶ Includes \$33,016,696 for major rehabilitation completed in FY 89.
¹⁷ Includes \$185,963,453 Inland Waterways Trust Funds.
¹⁸ Includes \$256,945,826 Inland Waterways Trust Funds.
¹⁹ Includes \$30,106,441 Inland Waterways Trust Funds.
²⁰ Exclusive of \$7,013,405 details below.

Additional Features Entering into Cost of Project	
Louisville and Portland Canal and Indiana chute (under previous project).	\$5,359,203
Examinations, survey contingencies, plants, and miscellaneous	966,232
Waterfront Development at Huntington, WV (Greenup Pool)	19,170
Recreation facilities, pool area, Gallipolis Locks and Dam.	668,800
Total	7,013,405
Grand Total	\$2,445,877,381

BUFFALO, NY DISTRICT

The District comprises northern OH, northwestern PA and western and northern NY, embracing U.S. waters of Lake Erie exclusive of a small portion of the western end, Lake Ontario, and St. Lawrence River, with their tributary drainage basins from boundaries between the states of OH and MI to international boundary line east of Frontier, NY.

IMPROVEMENTS

Navigation

Page

1. Ashtabula Harbor, OH	20-2
2. Barcelona Harbor, NY	20-2
3. Black Rock Channel and Tonawanda Harbor, NY	20-2
4. Buffalo Harbor, NY	20-3
5. Buffalo Hbr Environmental Dredging	20-3
6. Cleveland Harbor, OH	20-4
7. Conneaut Harbor, OH	20-5
8. Dunkirk Harbor, NY	20-5
9. Erie Harbor, PA	20-5
10. Fairport Harbor, OH	20-6
11. Great Sodus, NY	20-6
12. Huron Harbor, OH	20-6
13. Irondequoit Bay, NY	20-7
14. Lorain Harbor, OH	20-7
15. Oak Orchard, NY	20-8
16. Oswego Harbor, NY	20-8
17. Owasco Outlet, Auburn, NY	20-8
18. Port Clinton, OH	20-9
19. Put-In-Bay Harbor, OH	20-9
20. Rochester Harbor, NY	20-9
21. Rocky River, OH	20-9
22. Sandusky Harbor, OH	20-10
23. Sturgeon Point, NY	20-10
24. Toledo Harbor, OH	20-10
25. Touissaint River, OH	20-11
26. Vermilion Harbor, OH	20-11
27. West Harbor, OH	20-11
28. Wilson Harbor, NY	20-11
29. Reconnaissance and Condition Surveys	20-11

Navigation Work Under Special Authorization

30. Lake Erie-Cooley Canal-Lucas, OH	20-12
31. New York State Canal System	20-12
32. Rochester Harbor, NY (Wave Surge)	20-12

Shore Protection

Page

33. Presque Isle Peninsula, Erie, PA	20-12
--	-------

Flood Control

34. Mt. Morris Lake, NY Genesee River	20-13
---	-------

Urban Storm Water Management

35. Onondaga Storm Water Discharge, NY	20-13
--	-------

Miscellaneous

36. National Emergency Preparedness	20-13
37. Regulatory Functions Program	20-14

Tables

Table 20-A Cost and Financial Statement	20-15
Table 20-B Authorizing Legislation	20-22
Table 20-C Other Authorized Navigation Projects	20-38
Table 20-D Other Authorized Shore Protection (Formerly called "Beach Erosion Control") Projects	20-39
Table 20-E Other Authorized Flood Control Projects	20-40
Table 20-G Deauthorized Projects	20-41
Table 20-H Flood Control and Coastal Emergencies (FC&CE)	20-43
Table 20-I Formerly Used Sites Remedial Action Program (FUSRAP)	20-43
Table 20-J General Investigations	20-44
Table 20-K Work Under Special Authorities	20-45
Table 20-L Inspection of Completed Flood Control Projects	20-47

NAVIGATION

1. ASHTABULA HARBOR, OH

Location. On the south shore of Lake Erie, at mouth of Ashtabula River, 59 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14836.)

Previous Projects. For details see pg. 1963 of Annual Report for 1915, and pg. 1593 of Annual Report for 1938.

Existing Project. For description see pgs. 1297-99 of Annual Report for 1966. Federal cost of completed project is \$12,240,147. Non-Federal costs of \$5,743,000, including contribution of \$47,000, were for construction of access roads, docks, storage and handling facilities and dockside dredging. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with. Local interests contributed \$47,000 for work authorized by 1936 and 1970 acts.

Terminal Facilities. There are sixteen piers and wharves. Coast Guard owns one facility. Ten facilities are along banks of Ashtabula River and six are on south side of outer harbor. Eleven terminals have railroad connections and six have mechanical handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for real estate support cost \$3,256; project condition surveys cost \$28,930; dredging studies cost \$1,336. The U.S. Derrickboat *McCauley* repaired 730 l.f. of the east breakwater and cost \$1,035,170. Dredging cost \$200,893 to remove approximately 136,876 cubic yards of shoaled material. \$365,750 was expended on the Ashtabula River Partnership effort. The Partnership is comprised of local, private and government agencies to address remediation and removal of contaminated sediments in the Harbor and Ashtabula River system. Limited design-related work was performed to ascertain the magnitude of detailed design. Of the \$365,750, \$143,460 was expended for in-house management, supervision and administration. \$197,702 was expended for development of the final Comprehensive Management Plan and the Environmental Impact Statement. \$11,546 was expended for in-house Advance Preconstruction Engineering Design. \$13,217 was expended for the real estate appraisal for sediment and transfer and landfill facility sites. A credit of \$175 was for reduced contract costs.

2. BARCELONA HARBOR, NY

Location: On the south shore of Lake Erie about 17 miles southwesterly of Dunkirk, NY and 29 miles northwesterly of Erie, PA. (See NOAA Nautical Chart 14823.)

Previous Projects. Adopted by July 4, 1936, River and Harbor Act. Only information available is in index to report of Chief of Engineers under title "Portland Harbor, NY".

Existing Project. For description of existing project, see page 1506 of Annual Report for 1961. Actual costs for new work for completed project were \$1,124,286. Local interests incurred Non-Federal costs of \$60,000. Of this amount, \$7,500 was a cash contribution and remainder was for providing necessary lands and construction of a public wharf. Existing project was authorized by the 1945 River and Harbor Act (H. Doc. 446, 78th Cong., 2nd sess.).

Local Cooperation. Fully complied with. Local interests contributed \$7,500.

Terminal Facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during FY.

Maintenance: Federal funds for project condition surveys cost \$5,000 and supervision and administration cost \$71.

3. BLACK ROCK CHANNEL AND TONAWANDA HARBOR, NY

Location. Improvement is essentially that of upper 13.5 miles of Niagara River from its head at Lake Erie, Buffalo, NY, to and including Tonawanda Harbor, NY. It comprises improvements formerly designated by three titles; Lake Erie entrance to Black Rock Harbor and Erie Basin, NY, Black Rock Harbor and Channel, NY and Tonawanda Harbor and Niagara River, NY. (See NOAA Nautical Chart 14832.)

Previous Projects. For details, see items 5 and 7, pg. 1970 of Annual Report for 1915, and pg. 1612 of Annual Report for 1938.

Existing Project. For description of existing project and Federally owned Black Rock ship lock, see pg. 1548 of Annual Report for 1962. Improvement of guide pier at Black Rock Lock, as authorized by 1935 Act was de-authorized by Congress in Aug 1977. Cost for completed portion of new work is \$10,457,093. Enlarging of existing 21-foot turning basin and deepening lower 1,500 feet of Tonawanda Inner Harbor from 16 to 21 feet, authorized by the 1954 Act, was de-authorized by

BUFFALO, NY DISTRICT

Congress in May 1981, and is excluded from foregoing cost. Non-Federal costs are estimated at \$1,540,000 for costs incurred by NY State for construction of Erie Basin and protecting breakwater, and construction and extension of Bird Island Pier, and by other local interest for relocation of utilities. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with for existing project. Contract for cost-shared recreation development at completed projects (Code 713 program) was executed by the NY State Department of Environmental Conservation, Albany, NY on Apr 16, 1985, and was approved by the Assistant Secretary of the Army and Chief of Engineers on May 3, 1985.

Terminal Facilities. Two facilities are along the upstream end of the channel. Below Black Rock Lock and at Tonawanda Harbor there are 13 privately owned terminals. There are two State-owned barge canal terminals at Tonawanda, NY, and several marine service and supply docks for recreational and other small craft. The Corps owns a wharf adjacent to Black Rock Lock that is private. Ten terminals have railroad connections and six mechanical-handling facilities. Facilities considered adequate for existing commerce. (Port Series No. 41, revised 1971, Corps of Engineers.)

Operations and Results during FY.

Maintenance: The lock did not close for major maintenance during the 2001 fiscal year. All maintenance required during FY 2001 was accomplished with minimal impact on commercial and recreational navigation interests. Required repairs to the upper east guide wall and wharf wall were completed this fiscal year. Total costs of \$1,783,978 were distributed as follows: Operation and care of lock and ordinary maintenance and repair cost \$649,659. Project condition surveys cost \$36,200; water control management cost \$33,730. Maintenance included a credit of \$320 to finalize the contract for the rehabilitation of the upper east wharf wall. A cost of \$39,543 was incurred for clearing and snagging; \$393,980 for E&D for gate painting; \$18,860 for stream gauging; \$16,619 for signage; \$330,081 for plans and specifications for the middle gate removal; \$226,438 for rehabilitation of the upper west wall; \$4,012 for environmental compliance; \$31,790 for the visitor center and \$3,386 for lock hydraulic rehabilitation.

4. BUFFALO HARBOR, NY

Location. At eastern end of Lake Erie, at head of Niagara River, 176 miles easterly from Cleveland, OH. (See NOAA Nautical Charts 14820 and 14833.)

Previous Projects. For details see pg. 1967 of Annual Report for 1915 and pg. 1606 of Annual Report for 1938.

Existing Project. For description see pg. 1368 of Annual Report for 1963. In addition, on Dec 15, 1980, OCE authorized the removal of bridge abutments of South Michigan Avenue Bridge. New work for completed project cost \$18,837,601. Estimated non-Federal costs were \$9,188,000 for deepening, widening, and improving Buffalo River and ship canal, constructing piers, retaining walls, and dikes and performing dockside dredging. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There are 27 piers, wharves, and docks of which five are on the outer harbor, nine are on the Lackawanna, Union, and Buffalo Ship Canals, and thirteen are located along the deep-draft section of the Buffalo River. Gateway Metroport, Division of Gateway Trade Center, Inc., owns and operates, for the former Bethlehem Steel Corp., wharves at Lackawanna for the receipt and shipment of general cargo and bulk commodities. Buildings of the former steel plant are utilized for transit and long-term storage of cargo as required. The Niagara Frontier Transportation Authority owns Terminals A and B in the outer harbor used for handling general cargo. Twenty terminals have railroad connections. The City of Buffalo owns a slip on the right bank of Buffalo River just north of Michigan Avenue Bridge for mooring the city fireboat. Coast Guard facilities are at the mouth of Buffalo River along the left bank. (See Port Series No. 41, revised 1991, U.S. Army Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for CDF studies cost \$7,452; real estate support cost \$10,000; project condition surveys cost \$70,000; dredging studies cost \$32,333; water control management cost \$33,944. Work performed using the U.S. Derrickboat *McCauley* cost \$51,719. The work included repairs to 75 l.f. of the South Breakwater, Dike 4, snagging and clearing the Buffalo River, and clearing out the culverts at Bird Island Pier. Coastal mapping cost \$113,996.

5. BUFFALO HARBOR ENVIRONMENTAL DREDGING, NY

Location: The eastern end of Lake Erie at the head of the Niagara River, 176 miles easterly from Cleveland, OH.

Previous Projects: None

Existing Project: An outer harbor, about 41/2 miles long and 1,600 feet wide, formed by a

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

breakwater system, approximately parallel to the lake shore, 22,718 feet in length, with entrances near north and south ends and one confined disposal facility. A west breakwater 1,800 feet long located in Lake Erie protecting the north entrance. The inner harbor consists of a south pier at the mouth of the Buffalo River, about 5.8 miles of Federal Channel in the Buffalo River, and a 2-mile channel in the Buffalo Ship Canal.

Local Cooperation: Fully complied with.

Terminal Facilities: There are 13 wharves and docks located along the deep-draft section of the Buffalo River. Grain storage facilities, a cement transfer operation and a fuel storage/transfer operation are found along the Buffalo River on both banks. The City of Buffalo owns a slip on the right bank of Buffalo River just north of Michigan Avenue Bridge for mooring the city fireboat. Coast Guard facilities are at the mouth of Buffalo River along the left bank. (See Port Series No. 41, revised 1991, U.S. Army Corps of Engineers.)

Operations and Results during FY.

Maintenance: \$67 in Federal funds was expended for project management.

6. CLEVELAND HARBOR, OH

Location. On south shore of Lake Erie, at mouth of Cuyahoga River, 176 miles westerly from Buffalo, NY. (See NOAA Nautical Chart 14839.)

Previous Projects. For details see pg. 1962, Annual Report for 1915, and pg. 1585, Annual Report for 1938.

Existing Project. For description of existing project, as authorized through the 1966 modification, see pg. 1269 of Annual Report for 1967. Further improvements in the interest of commercial navigation and recreational navigation were authorized in the 1985 Supplemental Appropriations Act (PL 99-88). For details of the commercial navigation portion of the project, see pg. 20-4 of the Annual Report for 1995. For details of the recreational navigation portion of the project, see pg. 20-3 of Annual Report for 1994. The recreational navigation project was also authorized by the Water Resources Development Act of 1986 (PL 99-662) and the FY 88 Energy and Water Appropriations Act (PL 100-202). These acts also authorized additional undefined improvements to Cleveland Harbor. A portion of the project was de-authorized by the Intermodal Surface Transportation Efficiency Act of 1991. Estimated total Federal cost of the existing project is \$33,852,100 (Oct 1991) exclusive of undefined, inactive and deferred portions of the project. The amount of \$29,315,100 is for completed work and the balance of \$4,537,000 is for new work.

Estimated non-Federal cost is \$13,740,000 (Oct 1991) of which \$9,203,000 is actual cost for completed work and the balance of \$4,537,000 is required for work authorized by PL 99-88, PL 99-662, and PL 100-202. Remaining work authorized by 1946 River and Harbor Act, consisting of widening and deepening the right bank of Cuyahoga River at the downstream end of Cut 4, is considered inactive and excluded from foregoing cost estimate. Estimated Federal cost (1966) of this portion is \$85,600 and non-Federal cost (1966) \$5,000,000. Remaining work authorized by 1958 R&H Act, consisting of planning and replacement of bridges number 19 (E.L.R.R.) and 32 (B. & O.R.R.) and widening Cuyahoga and Old River channels, and remaining work authorized by the 1960 R&H Act, consisting of deepening the remainder of the Cuyahoga River from bridge number 1 to and including the Old River to a depth of 27 feet, has been classified as deferred and is also excluded from foregoing estimate. Estimated Federal cost (Oct 1976) of this portion is \$18,033,300 and estimated non-Federal cost (Oct 1976) is \$21,251,000. The 1989 Energy and Water Development Appropriations Act (PL 101-101) authorized the Corps to begin a Reconnaissance study of the Cuyahoga River, to address the concerns of boat traffic congestion and related risks, accidents and safety of the public. Preliminary plans were studied to alleviate the commercial navigation problem and inadequate width and depth, in the Old and Cuyahoga Rivers. The cost of this Reconnaissance study was \$250,000. The Reconnaissance Report recommended a feasibility study for one plan which has three structural features and the potential for yielding commercial (priority) outputs. The non-Federal sponsor did not commit to provide its total share of the cost of the feasibility phase of the study. Therefore, the study was reclassified as "inactive". (See Table 32-B for authorizing legislation.) A confined disposal facility (CDF) (Dike 10B) was constructed adjacent to the Burke Lakefront Airport for containment of dredged material from Cleveland Harbor. The rubble mound structure was designed to hold material unsuitable for open-lake disposal. The sixty-eight (68) acre site should provide sufficient CDF capacity for approximately twenty years. The project was constructed with Federal O&M funds at a cost of \$17,500,000 and was completed in 1998.

Terminal Facilities. Fifty-one piers, wharves, and docks are situated in the Port of Cleveland. Eleven are located in the east and west basins of the outer harbor; 7 along the banks of the Old River and 17 and 16 along the right and left banks of the Cuyahoga River, respectively. Twenty-two terminals have both railroad connections and mechanical-handling

BUFFALO, NY DISTRICT

facilities. The Corps owns a wharf at the foot of East 9th Street. The City of Cleveland owns and operates a wharf for mooring the city fireboat. U.S. Coast Guard vessels are moored east of the foot of 9th Street in the east basin. (See Port Series No. 43, revised 1989, U.S. Army Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for environmental activities cost \$4,392; project condition surveys cost \$70,345; dredging cost \$3,411,169 to remove approximately 300,000 cubic yards of shoaled material and to finalize the FY 00 contract; dredging studies cost \$3,147. Project management for the CDF Site 10B contract cost \$7,087 and \$2,113 for Dock 20. \$914,079 was expended to replace 37,700 tons of deteriorated armor stone along the entire length of Dike 14, (5,100 feet long by 25 feet high). Of the \$914,079, project management, engineering and design cost \$212,253; environmental analysis cost \$7,708; construction cost \$642,888; supervision and administration during construction cost \$51,230. A total of \$2,669,092 was expended to re-establish 1,600 feet of the outer slopes of the breakwater. Construction consisted of 45,300 tons of armor stone placement, 9,300 tons of underlayer stone and 2,550 tons of bedding stone. Of the \$2,669,092, project management and preparation of plans and specifications cost \$298,645; construction cost \$2,211,761; supervision and administration during construction cost \$158,686. \$860,319 was expended to repair 63 l.f. of the West Arrowhead Breakwater, and \$24,612 was expended for snagging and clearing using the U.S. Derrickboat *Simonsen*. Non-Federal cost was \$1,414 to finalize the contract to extend 3 combined storm water and sewer overflow utility pipes.

7. CONNEAUT HARBOR, OH

Location. On the south shore of Lake Erie, at mouth of Conneaut River, 73 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14824.)

Previous Projects. For details see pg. 1964, Annual Report for 1915.

Existing Project. For description see pg. 1274 of Annual Report for 1967. Actual costs for new work for completed portion of the project were \$7,541,369. For completed work, non-Federal costs were \$200,000 for dockside dredging and removal of existing dolphins. The most southerly 300 feet of the 1,670 foot long shore arm, authorized by the R&H Act of 1910, was de-authorized Oct. 96. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed portion of project.

Terminal Facilities. There are seven piers and wharves. Six are privately owned and operated and located in inner harbor. Remaining facility is city owned on the south side of outer harbor. Six terminals have railroad connections and four mechanical-handling facilities. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for economic studies cost \$1,133; project condition surveys cost \$22,360; and environmental studies cost \$2,103.

8. DUNKIRK HARBOR, NY

Location. On south shore of Lake Erie, 37 miles southwesterly from Buffalo, NY. (See NOAA Nautical Chart 14823.)

Previous Projects. For details see pg. 1966 of Annual Report for 1915, and pg. 1604 of Annual Report for 1938.

Existing Project. For description of completed portion of existing project see pg. 32-8 of Annual Report for 1976. For description of small boat harbor project as authorized under Section 201 of Flood Control Act of 1965, see pg. 32-8 of Annual Report for 1978. Actual costs for completed work are \$3,010,024. Actual non-Federal costs are \$1,961,000. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$33,450. \$224,338 was expended to finalize the FY 00 contract. A total of 26,222 cubic yards of shoaled material was removed.

9. ERIE HARBOR, PA

Location. On southerly side of bay formed by Presque Isle Peninsula, on south shore of Lake Erie, 78 miles westerly from Buffalo, NY. (See NOAA Nautical Chart 14835.)

Previous Projects. For details see pg. 1965 of Annual Report for 1915 and pg. 1600 of Annual Report for 1938.

Existing Projects. For description see pgs. 1363-64 of Annual Report for 1963. The FY 93 Appropriations Act (PL102-377) authorized the planning, design and dredging of an access channel and berthing area. Entire project modification authorized by 1945 River and Harbor Act, providing for deepening channel and basin, both 23 feet deep, to Penn Central Company coal docks at westerly end

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

of harbor, was de-authorized by Congress in Aug 1977. Actual costs for new work for completed portion of project were \$2,860,906. Extension of north pier portion, authorized by 1899 Act was de-authorized in Nov 1981. A portion of work authorized by 1960 Act, deepening strips adjacent to north and south piers, was de-authorized in Aug 1982. Non-Federal costs for completed work were \$51,000 for providing ore dock and dredging slip adjacent thereto. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Sixteen piers and wharves, of which twelve are privately owned and operated. Erie International Marine Terminal No. 1 owned by Port Commission, City of Erie, is along main waterfront on south side of Presque Isle Bay and Coast Guard facilities are on north side. Two offshore oil docks are on Lake Erie. Eight terminals have railroad connections and six mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See port Series No. 42, revised 1972, Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$22,635; dredging studies cost \$1,000; miscellaneous costs were \$64. A reimbursement for \$68,430 was given to the Pennsylvania Historic and Museum Commission, Commonwealth of Pennsylvania for expenses incurred by the sponsor associated with the NIAGARA berthing area. \$12,417 was expended to finalize the work on the U.S. Brig NIAGARA. Real estate costs were \$3,166; North Pier monitoring cost \$38,812.

10. FAIRPORT HARBOR, OH

Location. On south shore of Lake Erie at mouth of Grand River, 33 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14837.)

Previous Projects. For details see pg. 1963 of Annual Report for 1915, and pg. 1590 of Annual Report for 1938.

Existing Project. For description of existing project, see pg. 1526 of Annual Report for 1962. Total Federal cost of \$2,591,000 is actual cost for completed portion of project. Total non-Federal cost is \$101,000 for bulkheads and dockside dredging for completed portion of project. (See Table 20-B for authorizing legislation.)

Local Cooperation. See pg. 32-11 of 1976 Annual Report regarding assurances of local cooperation for work authorized by R&H Act of 1927.

Terminal Facilities. Sixteen piers and wharves, all along banks of Grand River. Coast Guard owns

one facility. Nine terminals have railroad connections and ten mechanical-handling facilities. Facilities considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for real estate support cost \$6,499; project condition surveys cost \$18,550. Federal funds for the rehabilitation of the East Pier, 580 feet long by 20 feet wide cost \$822,988. Of the \$822,988, removal and replacement of the concrete cap, filling of voids at the sides and reconstruction of the end section cost \$787,423. Supervision and administration during construction cost \$35,565. \$3,975 was expended for inspection of the East Breakwater. Dredging cost \$807,125 to remove approximately 186,618 cubic yards of shoaled material

11. GREAT SODUS BAY HARBOR, NY

Location. On Sodus Bay, which is a nearly land-locked indentation on south shore of Lake Ontario, 29 miles westerly from Oswego, NY. (See NOAA Nautical Chart 14814.)

Previous Project. For details, see pg. 1972 of Annual Report for 1915, and pg. 1526 of Annual Report for 1938.

Existing Project. For description, see pg. 1380 of Annual Report for 1963. Improvements authorized by 1962 Act, consisting of deepening lake approach channel, entrance channel and inner approach channel were deauthorized by Congress in Aug 1977. Actual costs of new work for completed portion of project were \$249,187. Costs incurred by local interests are not available. (See Table 20-B for authorization legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and Results During FY. Maintenance: Federal funds for project condition surveys cost \$7,320.

12. HURON HARBOR, OH

Location. On south shore of Lake Erie at mouth of Huron River, 47 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14843.)

Previous Project. For details, see pg. 1961 of Annual Report for 1915, and pg. 1576 of Annual Report for 1938.

Existing Project. For description, see pg. 1347 of Annual Report for 1963 and pg. 32-12 of Annual

BUFFALO, NY DISTRICT

Report for 1978. Cost of completed portion of existing project was \$4,834,006. Construction of detached breakwater as authorized by 1962 R&H Act was de-authorized Jan 1, 1990. Non-Federal costs of \$163,000 were incurred by local interests in 1963 for dockside dredging of areas between Federal improvement and terminal facilities. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Six privately owned wharves and docks, one along left bank of Huron River and remainder along right bank. Four terminals have railroad connections and four mechanical-handling facilities. Facilities are regarded as adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$19,030. Finalizing the FY 00 dredging cost \$42,139; real estate costs were \$526; inspection cost \$1,109.

13. IRONDEQUOIT BAY, NY

Location. On south shore of Lake Ontario, 4 miles east of Rochester, NY at mouth of Irondequoit Creek, Monroe County, NY. (See NOAA Nautical Charts 14804 and 14815).

Existing Project. For details of existing project, see pg. 32-7 of Annual Report for FY 87. Total estimated project cost is \$15,363,000 (Oct 1994) including \$3,582,000 Federal (which includes the COE \$3,536,000 and the USCG \$46,000) and \$11,781,000 non-Federal, including a cash contribution of \$2,661,000, lands and damages \$290,000 and the cost of a movable highway bridge \$8,830,000. Existing project was authorized by 1958 River and Harbor Act (H. Doc. 332, 84th Cong., 2nd sess.).

Local Cooperation. The Buffalo District has a Local Cooperation Agreement with New York State, executed April 20, 1983.

Terminal Facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$1,965. Dredging cost \$533 to finalize the FY 00 contract.

14. LORAIN HARBOR, OH

Location. On south shore of Lake Erie at mouth of Black River, 25 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14841.)

Previous Projects. For details, see pg. 1961 of Annual Report for 1915, and pg. 1580 of Annual Report for 1938.

Existing Project. For description see pgs. 1319-22 of Annual Report for 1966. Federal cost of new work is \$20,475,000. Deepening and widening remainder of Black River Channel at Cut 1 and construction of bank stabilization, authorized by 1960 Act and modified by 1965 Act was de-authorized Jan 1, 1990. A portion of work authorized by 1960 Act, dredging of 15-to-25 foot wide strips adjacent to the U.S. East and West Piers were also de-authorized Jan 1, 1990. Total non-Federal cost is \$3,000 contributed by local interests towards construction of west shore arm. (See Table 20-B for authorizing legislation.) The Water Resources Development Act (WRDA) of 1986 (PL 99-662) authorized construction of commercial navigation improvements consisting of two bend cuts on the Black River to widen and straighten the channel between the Norfolk and Western Railroad Bridge and the 21st Street Bridge. These cuts are to be excavated to the existing channel depth of 27 feet. The authorized plan also includes widening the Upper Turning Basin at the existing depth of 21 feet. Estimated costs for this work are \$2,290,000 Federal and \$1,510,000 non-Federal (Oct 1989). This portion of the project has been classified deferred. On Mar 12, 1986, the Chief of Engineers under authority of Section 107 of the 1960 River and Harbors Act, as amended, authorized construction of a small boat harbor that was completed in Jul 1987. The project consists of a 225-foot detached rubble mound breakwater and an 800-foot long rubble mound breakwater attached to the east breakwater shorearm in the east basin of the outer harbor. Construction costs for this project, including supervision and administration, were \$775,025 Federal and \$775,025 non-Federal.

Local Cooperation. For completed work, local interests contributed \$3,000. Work authorized by 1960 Act (and modified by 1965 Act) is de-authorized. All other conditions fully complied with. On Mar 25, 1986, the City of Lorain, OH signed the Local Cooperation Agreement (LCA), for the Section 107 project. For details see pg. 32-7 of Annual Report for 1986. For details of LCA for deferred project authorized by the 1986 WRDA, see pgs. 32-9 of Annual Report for FY 87.

Terminal Facilities. There are 23 piers and wharves, of which three are on the outer harbor and the remainder are along banks of Black River. Two are owned by the city. Eight terminals have railroad connections and 15 mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Operations and Results during FY.

Maintenance: Federal funds for coastal mapping cost \$2,000; real estate support cost \$9,000; project condition surveys cost \$18,390; dredging studies cost \$3,186. Federal funds for engineering and design of the East Pier, 880 feet long by 20 feet wide, includes drilling cost \$12,676; real estate, \$4,000; environmental analysis, \$5,526; design and preparation of plans and specifications, \$196,031. Federal funds for engineering and design of the West Pier, 1,000 feet long by 17 to 23 feet wide, includes drilling cost, \$19,706; environmental consideration, \$3,696; diving inspection, \$7,000; and design analysis, \$90,098. 172 l.f. of the West Breakwater was repaired using the U.S. Derrickboat *Simonsen* and cost \$618,695. The FY 00 dredging contract was finalized and cost \$163,824. \$107,816 was spent on the Lorain Harbor CDF (Dredged Material Management Plan). Of that amount, \$45,000 was spent on sampling and chemical analysis of Black River sediments to determine suitability for open lake disposal. An additional \$10,000 was spent on topographic surveys of the nearly full existing confined disposal site at Lorain. \$52,816 was expended on travel and labor related to development of alternative plans for future dredging and disposal needs at Lorain Harbor, OH.

15. OAK ORCHARD, NY

Location. On south shore of Lake Ontario, at mouth of Oak Orchard Creek, 33 miles westerly of Rochester, NY. (See NOAA Nautical Chart 14805.)

Previous Project. For details see pg. 628 of Annual Report for 1905.

Existing Project. For description of completed existing project see pg. 32-14 of 1975 Annual Report. Actual Federal cost for completed project was \$1,613,500. Estimated non-Federal cost is \$270,000 (Jul 1971) including cash contribution of \$170,700 and \$54,002 for recreational facilities and remainder for lands and construction of wharf. Existing project was authorized by the 1945 River and Harbor Act (H. Doc. 446, 78th Cong., 2nd sess.).

Local Cooperation. Fully complied with. Local interests contributed \$224,702.

Terminal Facilities. There is no commercial navigation at Oak Orchard Harbor. Terminal facilities consist of private docks for recreational craft.

Operations and Results during FY. Maintenance: Federal funds for project condition surveys cost \$6,405; dredging cost \$55,607 to finalize the FY 00 contract.

16. OSWEGO HARBOR, NY

Locations. On South shore of Lake Ontario, at mouth of Oswego River, 59 miles easterly from Rochester, NY. (See NOAA Nautical Chart 14813.)

Previous Projects. For details see pg. 1973 of Annual Report for 1915, and pg. 1630 of Annual Report for 1938.

Existing Project. For description see pgs. 1383-84 of Annual Report for 1963. Completed portion of project cost \$7,242,039 and non-Federal costs for completed work were \$4,440,000 for lands, dockside dredging, construction of terminal wharves, and cargo handling facilities. Deepening a 200-foot wide strip along harbor line east of mouth of Oswego River, remaining feature of work authorized by the 1930 Act, was de-authorized Jan 1, 1990. Deepening to 22 feet a 150-foot wide strip along harbor line in west outer harbor, remaining feature of work authorized by 1940 Act, was de-authorized in May 1981. The portion of the Federal Channel from the southernmost alignment of the Route 68 Bridge upstream to the northernmost alignment of Lake Street Bridge authorized by the 1910 R&H Act as amended by the 1935 R&H Act, was de-authorized Oct 96. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There are seven piers and wharves in the harbor and along the river channel. The Port of Oswego owns and operates a general cargo terminal at the mouth of the Oswego River. The Port Authority also operates a grain elevator west of the mouth of the river. The U.S. Coast Guard moors patrol and environmental research vessels west of the mouth of the river.

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$8,900; FY 01 dredging contract cost \$477,947 to remove 42,930 cubic yards of shoaled material. 300 l.f. of the West Arrowhead was repaired by the U.S. Derrickboat *McCauley* cost \$485,325.

17. OWASCO OUTLET, AUBURN, NY

Location. The project is located on Owasco Outlet, in the Oswego River Basin at Auburn, N.Y., in the towns of Fleming and Owasco, Cayuga County, N.Y. (See U.S. Geological Survey map of Auburn, N.Y.)

Existing Project. For description see page 1538 of Annual Report for 1960.

Local Cooperation. Fully complied with. Local interest contributed \$80,000.

BUFFALO, NY DISTRICT

Operations and Results during FY.

Maintenance: Funds were adjusted downward by \$10.

18. PORT CLINTON HARBOR, OH

Location. Comprises lower half-mile of Portage River. River empties into Lake Erie 72 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14820.)

Existing Project. Provides for parallel jetties at river mouth and a channel in Lake Erie and Portage River with a project depth of 10 feet. For additional details, see pg. 1899 of Annual Report for 1951. (See Table 20-B for authorizing legislation.)

Terminal Facilities. A total of 11 docks exist; one public fish dock, one private sand dock, one private fuel dock, one lumber dock, one coal dock and five private docks. The Village of Port Clinton owns a dock at the foot of Madison Avenue that is open to the public. A shipyard builds small boats. Terminal facilities are adequate for existing commerce.

Operations and Results during FY.

Maintenance: \$1,517 was expended for site investigations and \$12,576 for real estate activities.

19. PUT-IN-BAY HARBOR, OH

Location. Located on the north side of South Bass Island approximately 5 miles due north of Port Clinton, OH. Approximately 60 miles west of Cleveland, OH and 40 miles east of Toledo, OH.

Existing Project. Provides for a channel of varying width, not exceeding 225 feet, and 14 feet deep from that depth in lake to a point 150 feet west of Fox Wharf. Thence 100 feet wide and 8 feet deep along harbor frontage to vicinity of Miller's Wharf, a distance of 1,600 feet, provided that no dredging is done by United States closer than 25 feet to existing structure. Existing project was completed in 1939. Cost of completed project was \$51,609.

Terminal Facilities. Dock facilities for the recreational boat users on the municipal dock. Island ferry service docks from South Bass Island to Port Clinton, OH.

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$887. Environmental studies related to dredging cost \$7,380.

20. ROCHESTER HARBOR, NY

Location. On south shore of Lake Ontario, at mouth of Genesee River, 59 miles westerly from Oswego, NY. (See NOAA Nautical Chart 14815.)

Previous Project. For details see pg. 1471 of Annual Report for 1915, and pg. 1623 of Annual Report for 1938.

Existing Project. For description see pg. 1556 of Annual Report for 1962. Actual cost for new work for completed project is \$2,191,514. Non-Federal costs are estimated at \$2,260,000, all for 1960 Act, for lands, relocation of submarine cable crossing, relocations of small docks and boathouses, dockside dredging, structure modifications, and replacement of Baltimore & OH coal loader. (See Table 20-B for authorizing legislation.)

Local Cooperation. Complied with except provision for replacement of coal loading facility as required by River and Harbor Act of Jul 14, 1960.

Terminal Facilities. There are 3 docks at Rochester Harbor. The City of Rochester owns an 830-foot long wharf at the entrance to the Genesee River. Three storage buildings at the terminal, formerly used as transit sheds, have approximately 100,000 square feet of storage space. Approximately 3 acres of open storage area is located at the upper end of the facility. The facility has not been used for handling cargo for over 10 years. The U.S. Coast Guard moors search and rescue vessels at the mouth of the Genesee River. Another private facility is located 1.6 miles above the Stutson Street Bridge.

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$13,540. The FY 01 dredging cost \$684,896 to remove approximately 162,382 cubic yards of shoaled material.

21. ROCKY RIVER, OH

Location. At mouth of Rocky River which empties into Lake Erie seven miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14826.)

Existing Project. For description see pg. 1329 of Annual Report for 1966. Federal cost for completed project was \$343,494 and non-Federal cost was a cash contribution of \$249,346. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with. Local interests contributed \$249,346 for new work.

Terminal Facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$14,955; real estate cost \$526. \$1,225,755 was expended to complete the rehabilitation for the 900-foot long East Pier. The rehabilitation raised the elevation of the pier 3 feet to

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

a new height of + 8 LWD, providing protection and safety to the inner harbor.

22. SANDUSKY HARBOR, OH

Location. On south shore of Lake Erie, in southeastern portion of Sandusky Bay, 50 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14845.)

Previous Project. For description see pgs. 1511-12 of Annual Report for 1962. Actual costs for new work for completed project were \$6,250,121, excluding \$325,000 contributed by local interests. Non-Federal costs for completed project are estimated at \$675,000, including \$325,000 cash contribution and the remaining \$350,000 is for dockside dredging adjacent to deepening channels authorized by 1960 Act. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with. Local interests contributed \$325,000 for new work.

Terminal Facilities. Fourteen piers and wharves, three at west end of harbor and remainder along dock channel. One is a base for State-owned fish research and patrol boats. One publicly owned and six privately owned used for mooring fishing boats and recreational craft and for ferry service. Five terminals have railroad connections and five mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for environmental studies cost \$1,619; project condition surveys cost \$36,555; real estate support cost \$3,000; dredging studies cost \$100; dredging cost \$650,634 to remove 162,382 cubic yards of shoaled material.

23. STURGEON POINT, EVANS, NY

Location. On south shore of Lake Erie, 17 miles southwest of Buffalo, NY and 22 miles northeast of Dunkirk, NY. (See Geological Survey map of Angola, NY.)

Existing Project. For description of existing project, see pg. 20-11 of Annual Report for 1991. Federal project cost is \$ 1,460,000. Non-Federal project cost is \$1,475,000. In addition, the local sponsor provided associated costs for upland development of \$1,000,000.

Local cooperation. The Buffalo District has a properly executed Local Cooperation Agreement with the Town of Evans, NY, signed Oct 26, 1987.

Operations and results During FY.

Maintenance: \$21,284 was incurred for sand by-pass reimbursement.

24. TOLEDO HARBOR, OH

Location. Comprises lower seven miles of Maumee River and channel through Maumee Bay to Lake Erie. Maumee River has its source in northern Indiana and empties into Lake Erie. Harbor is at the westerly end of Lake Erie, 99 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14847.)

Previous Projects. For details see pg. 1959 of Annual Report for 1915, and pg. 1565 of Annual Report for 1938.

Existing Project. For description of existing project see pgs. 32-18 and 32-19 of Annual Report for 1978. Cost of completed existing project was \$15,567,147. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Thirty-five piers, wharves and docks are located in the Port of Toledo. Seven are located on Maumee River; and 28 are equally divided along the right and left banks of the lower seven miles of the Maumee River. The Toledo-Lucas County Port Authority Facility No. 1 Wharf handles conventional and containerized general cargo as well as an increasing amount of miscellaneous bulk materials. Fifteen of the terminals have railroad connections and mechanical handling facilities. (See Port Series No. 44, revised 1989, U.S. Army Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for environmental studies cost \$12,318; project condition surveys cost \$107,415; dredging studies cost \$3,000. Dredging cost \$2,290,139 to remove approximately 650,000 cubic yards of shoaled material and to finalize the FY 00 dredging contract. Costs to continue the Long-Term Management Strategy were \$416,438. These costs included the cost of developing and implementing a mutually acceptable and comprehensive sampling and testing plan to conduct EPA-required scientific studies. These studies included toxicity, bioaccumulation biological effects and chemical analysis of sediment and water over 26 miles of lake and river channels. Other work efforts were field application of innovative technologies that restored 1.4 million cubic yards of storage capacity in the existing confined disposal facilities, thereby expanding the useful life of these facilities. Miscellaneous other works performed included regular leachate testing and surveys for estimating restored capacity.

BUFFALO, NY DISTRICT

25. TOUSSAINT RIVER, OH

Location. At westerly end of Lake Erie, 8 miles west of Port Clinton and 22 miles east of Toledo, Ohio. (See NOAA Nautical Chart 14847.)

Existing Project. For description of existing project, pg 20-12 of Annual Report for 1991. (See Table 20-B for authorizing legislation.) Project is deferred due to discovery of unexploded ordnance in the dredging area.

Local cooperation. The Buffalo District has a properly executed Local Cooperation Agreement with Carroll Twp., OH, signed Apr 3, 1991.

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$16,055; dredging cost \$210,190. Non-Federal funds were \$59,413 for dredging.

26. VERMILION HARBOR, OH

Location. On south shore of Lake Erie at mouth of Vermilion River, 37 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14826.)

Existing Project. For description of existing project see pgs. 32-17 and 32-18 of Annual Report for 1975. Actual Federal cost for the completed existing project was \$1,156,118. Estimated non-Federal cost for new work is \$754,679 including cash contribution of \$740,679 and remainder for relocation of submarine cable and construction of public wharf. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with. Local interests contributed \$740,679.

Terminal Facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft. A reconnaissance study to alleviate the ice-jam and free-flow flooding of the river was completed in 1986 at a cost of \$180,000. The proposed project was an ice-retention structure. The non-Federal sponsor did not commit to provide its total share of the cost of the feasibility study; the project was therefore reclassified as "inactive".

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$12,950; dredging cost \$371,464 to remove 17,802 cubic yards of shoaled material. Environmental costs were \$990.

27. WEST HARBOR, OH

Location. On southwest shore of Lake Erie, 13 miles northeast of Port Clinton, OH. (See NOAA Nautical Chart 14847.)

Existing Project. For description of existing project, see pg. 32-10 of Annual Report for 1983. Total Federal cost for new work was \$3,303,898. Total non-Federal cost for new work was \$3,922,000 including cash contribution of \$3,795,000. Existing project was authorized by 1965 River and Harbor Act (H. Doc. 245, 88th Cong., 2nd sess.).

Local Cooperation. See pg. 32-20 of 1978 Annual Report for requirements of local cooperation. By letter dated Jan 31, 1978, State of OH stated its intent to furnish assurances of local cooperation, and executed LCA was received on Mar 9, 1981.

Terminal Facilities. Commerce at the harbor presently consists of recreational boating and affiliated activities.

Operations and Results during FY.

Maintenance: Federal funds for dredging cost \$51,311.

28. WILSON HARBOR, NY

Location. At mouth of east branch of Twelve-Mile Creek, which enters Lake Ontario 12 miles easterly of mouth of Niagara River, and 67 miles westerly of Rochester Harbor, NY. (See NOAA Nautical Chart 14806.)

Previous Projects. For details see pg. 2395 of Annual Report for 1889, and pg. 628 of Annual Report for 1905.

Existing Project. For description of existing project see pg. 32-18 of Annual Report for 1975. Actual Federal cost for completed existing project was \$477,904. Estimated non-Federal costs are \$774,000 that includes cost of \$16,000 for previously completed work. Remainder of non-Federal costs is for work required for 1968 R&H Act including cash contribution of \$166,988. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft. Facilities are considered adequate for existing commerce.

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$17,302; dredging cost \$981 to finalize the FY 00 contract.

29. RECONNAISSANCE AND CONDITION SURVEYS

Condition surveys were performed by the Buffalo District at a cost of \$72,375. Remaining cost for reconnaissance and condition surveys are reported in individual project write-ups.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

<u>Project</u>	<u>Date of Survey</u>
Cattaraugus Creek	Jul 2001
Little Sodus Bay	Jul 2001
Ogdensburg Harbor	Apr 2001
Olcott Harbor	Aug 2001
Niagara River	Sep 2001
Port Ontario	Jul 2001

NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

30. LAKE ERIE - COOLEY CANAL - LUCAS, OH

Location: On the south shore of Lake Erie, approximately 12 miles east of Toledo, OH and 14 miles west of Port Clinton, OH.

Existing Project: The project consists of two breakwaters, the west is 1,400 feet long and the east is 250 feet long. Also, included in the project is dredging a navigation channel to a depth of -4 LWD. The Federal cost of the project is \$2,197,000 and the non-Federal share is \$244,100.

Local Cooperation: The Buffalo District has properly executed a Project Cooperation Agreement with Lucas County, OH, signed Oct 27, 1997.

Operation and Results during FY. New Work: Due to balancing the Federal and Non-Federal cost, it resulted in a credit of \$4,546 to finalize the construction contract. Federal funds of \$42,711 were incurred for engineering and design. Non-Federal funds were \$4,546 for construction; \$13,205 for engineering and design; and \$16 for the construction contract.

31. NEW YORK STATE CANAL SYSTEM

Location: The New York State Canal System runs primarily east west through New York State. It consists of four components: Erie Canal, Oswego Canal, Cayuga/Seneca Canal, and Champlain Canal.

Existing Project: Reimburse the State of New York 50% of non-Federal operation, maintenance and rehabilitation costs as well as make capital improvements. Existing project was authorized by Sec. 1105, WRDA 1986 and Sec. 553, WRDA 1996 and Sec. 341, WRDA 1999.

Local Cooperation: Fully complied with.

Terminal Facilities: Numerous piers, wharves and locks used for recreational craft.

Operations and Results during FY. New work \$3,359,073 was expended for Reconnaissance Report/Decision Document and to reimburse the State of NY for completed project.

32. ROCHESTER WAVE SURGE, NY

Location. On south shore of Lake Ontario at mouth of Genesee River, 59 miles westerly from Oswego, NY. (See NOAA Nautical Chart 14815).

Existing Project. Project was approved for construction by the Chief of Engineers pursuant to Section 107 of the 1960 River and Harbors Act, as amended, as authorized by the 1990 Water Resources Development Act. The recommended plan of improvement consists of a partial segmented rubble mound lining of the interior walls of the existing piers. Total estimated Federal cost of the project is \$3,850,000. Total estimated non-Federal cost is \$3,850,000.

Local Cooperation. The Local Cooperation Agreement was executed with the local sponsor, the City of Rochester, on Feb 27, 1996.

Operations and Results during FY. New work: Due to balancing of Federal and non-Federal cost, FY 01 Federal costs resulted in a credit of \$528,661 for construction activities.

SHORE PROTECTION

33. PRESQUE ISLE PENINSULA, ERIE, PA

Location. At Erie, PA, on south shore of Lake Erie, 78 miles southwest of Buffalo, NY and 102 miles east-northeast of Cleveland, OH. (See NOAA Nautical Charts 14824 and 14835.)

Existing Project. For description of completed portion of existing project see pg. 1393 of Annual Report for 1963. For details of project authorized by the 1974 Water Resources Development Act (WRDA), 1976 WRDA and 1986 WRDA, see pg. 32-14 of Annual Report for FY 87. Actual Federal cost for the authorized beach nourishment project modifications through FY 92 is \$16,879,000 which includes \$5,646,000 for completed work authorized by the 1954 and 1960 R&H Acts and 1974 WRDA Act and \$11,233,000 for completed work authorized by the 1976 WRDA Act. Actual non-Federal cost for the authorized project and modifications through FY 92 is \$8,798,000 which includes \$3,983,000 for completed work authorized by 1954 and 1960 R&H Acts and 1974 WRDA Act and \$4,815,000 for completed work authorized by the 1976 WRDA Act. Beach nourishment as authorized by the 1976 WRDA was completed in FY 91. The estimated Federal cost (Oct 1999) for the 55 breakwaters project is \$66,335,000. This estimate includes \$13,435,000 for the initial construction and \$52,900,000 for 50 years of post-construction beach nourishment. The estimated non-Federal cost for the breakwater project

is also \$66,335,000. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed project as authorized by 1954 and 1960 R&H Acts and 1974 WRDA Act. An agreement between the United States of America and the Commonwealth of PA, acting through the Department of Environmental Resources was entered into on Feb 21, 1979 for the annual nourishment which was extended by the 1976 WRDA Act.

Operations and Results during FY. New work: Annual nourishment for a 50 year period, beginning in FY 93, continued in FY 01 for the ninth year of this 50-year period. Federal expenditures were \$435,232 for the nourishment contract, \$5,770 for contract supervision and administration and \$72,788 for in-house engineering and design. Non-Federal costs were \$373,468 for the nourishment contract, \$37,511 for contract supervision and administration; \$104,128 for in-house engineering and design; and \$3,557 for HTRW activities.

FLOOD CONTROL

34. MT. MORRIS LAKE, GENESEE RIVER, NY

Location. Dam is on Genesee River 66.9 miles above river mouth and about 32 miles southwesterly of Rochester, NY. Reservoir is in Livingston and Wyoming Counties, NY. (See Ecological Survey maps of Nunda and Portage, NY).

Existing Project. For description of existing project, as authorized by 1944 Flood Control Act, see pg. 1575 of Annual Report for 1962. New work for completed project cost \$23,365,559. In addition, \$5,000 contributed funds were expended for new work.

Local Cooperation. None required. Local interests contributed \$5,000 for new work.

Operations and Results during FY.

Maintenance: Federal funds for the operation of the dam, reservoir and service facilities, real estate support and miscellaneous reports were accomplished by hired labor at a cost of \$580,829. Flood emergency plans cost \$85,637; water control management cost \$395,533 and \$35,757 for dam safety. Operation and maintenance costs for the visitor center and recreation facilities were \$249,049; debris removal cost \$328,729. Costs to finalize the bank stabilization project were \$462. Costs for road repairs were \$78,901.

URBAN STORM WATER MANAGEMENT

35. ONONDAGA STORM WATER DISCHARGE, NY

Location. Onondaga Lake is located in Central NY State, northwest of the City of Syracuse, within the Oswego River Basin, which is tributary to Lake Ontario. It is also part of the NY State Barge Canal System. (See Geological Survey map of Syracuse, NY.)

Existing Project. Existing project is authorized under Section 307 of the Waters Resources Development Act of 1992 (PL 102-580) and will demonstrate the effectiveness of using swirl concentrator system technology for combined Sewer Overflow abatement at Hiawatha Boulevard to improve water quality in Onondaga Lake. The project has three separate components: interceptor sewers; a treatment and storage facility; and out fall pipe and force main which will be designed and constructed by others. Federal cost will be \$3,406,000. Non-Federal cost is estimated to be \$3,786,000.

Local Cooperation. The project will be cost-shared 75% Federal, 25% non-Federal up to the maximum Federal contribution (\$4,000,000).

Operations and Results during FY. New work: Federal costs for FY 01 were \$8,443 for real estate activities; \$421,764 for in-house engineering effort, \$296,554 for contract activities; \$264,398 for feasibility effort; \$112,983 for supervision and administration of the contract; and \$2,529 for HTRW Activities. Non-Federal costs were \$15,236 for in-house engineering effort; \$110,390 for supervision and administration of the contract; \$45,977 for feasibility effort for contract activities; and \$1,306,556 for HTRW activities.

MISCELLANEOUS

36. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM (CDPP)

Local Preparedness.....	\$16,448
National Emergency Facilities.....	18,519
National Preparedness.....	93
Readiness Training and Exercise Task Force...	19,941
Total CDPP.....	\$55,001

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

37. REGULATORY FUNCTIONS PROGRAM

Permit Evaluation.....	\$2,639,460
Enforcement.....	849,994
Administrative Appeals.....	796
Total Regulatory.....	\$3,490,250

BUFFALO, NY DISTRICT

Table 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep 30, 2001
NAVIGATION							
1. Ashtabula Harbor, OH	New Work Approp.						12,805,339 ¹
	New Work Cost						12,805,339 ¹
	Maint. Approp.	359,370	411,713	654,643	1,643,341		19,980,900
	Maint. Cost	348,806	416,065	654,441	1,635,336		19,965,641
	Rehab. Approp.						6,077,000
	Rehab. Cost						6,077,000
2. Barcelona Harbor, NY	New Work Approp.						1,185,853
	New Work Cost						1,185,853
	Maint. Approp.		465,388	62,226	4,984		2,462,775
	Maint. Cost		465,388	62,139	5,071		2,462,775
(Contributed Funds)	New Work Contrib.						174,000
	New Work Cost						174,000
3. Black Rock Channel Tonawanda Harbor, NY	New Work Approp.						11,135,120 ²
	New Work Cost						11,135,120 ²
	Maint. Approp.	4,246,500	3,473,867	1,908,300	1,780,439		67,703,887 ³
	Maint. Cost	4,274,097	3,549,008	1,906,871	1,783,978		67,683,220 ³
(Contributed Funds)	New Work Contrib.						620,000
	New Work Cost						620,000
4. Buffalo Harbor, NY	New Work Approp.						23,115,187 ⁴
	New Work Cost						23,115,187 ⁴
	Maint. Approp.	1,367,500	1,462,041	662,363	312,938		67,254,276 ⁵
	Maint. Cost	1,426,799	1,467,976	654,623	320,444		67,253,537 ⁵
	Rehab. Approp.						295,457
	Rehab. Cost.						295,457
5. Buffalo Harbor, NY, Environmental Dredging	Maint. Approp.	123,000	(12,374)	24,375	(170)		134,831
	Maint. Cost	28,373	80,169	26,221	67		134,830

¹ Includes \$565 for previous projs. Excludes \$47,000 contributed funds.

² Includes \$58,027 for previous projs.

³ Includes \$4,922 emergency relief authority administrative costs transferred for new work to maintenance upon conversion to programming & budgeting system Jul 1, 1953 by direction of Office, Chief of Engineers. Also includes appropriations & cost under appropriation titles 96X3123 Operations and Maintenance & 96X5125 Maintenance and Operation of Dams and Other Improvements of Navigable Waters.

⁴ Includes \$4,277,586 for previous projs. Excludes expenditures of \$239,305 for work authorized be Sec. 107.

⁵ Includes \$1,883,647 for previous projs. Excludes \$446,805 contributed funds.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep 30, 2001
6. Cleveland Harbor, OH	New Work Approp.						36,550,299 ⁶
	New Work Cost						36,550,299 ⁶
	Maint. Approp.	9,695,600	4,108,972	5,686,707	7,974,969		222,982,916 ⁷
	Maint. Cost	9,061,717	4,952,590	5,733,286	7,966,353		222,955,608 ⁷
	Rehab. Approp.						16,404,903
	Rehab. Cost						16,404,903
	(Contributed Funds)						
	New Work Contrib.						1,083,178
	New Work Cost						1,083,178
	Maint. Contrib.	3,077,000	1,150,000				7,744,000
	Maint. Cost	3,768,714	1,364,012	23,649	1,414		7,660,723
7. Conneaut Harbor, OH	New Work Approp.						8,346,641 ⁸
	New Work Cost						8,346,641 ⁸
	Maint. Approp.	47,200	920,124	570,235	25,500		15,762,380 ⁹
	Maint. Cost	40,150	927,137	570,177	25,595		15,762,382 ⁹
	Rehab. Approp.						651,850
	Rehab. Cost						651,850
8. Dunkirk Harbor, NY	New Work Approp.						3,010,024 ¹⁰
	New Work Cost						3,010,024 ¹⁰
	Maint. Approp.	367,900	324,332	413,202	257,226		5,710,601
	Maint. Cost	364,669	356,519	412,640	257,788		5,710,600
	Rehab. Approp.						1,950,000 ¹¹
	Rehab. Cost						1,950,000 ¹¹
9. Erie Harbor, PA	New Work Approp.						3,597,873 ¹²
	New Work Cost						3,597,873 ¹²
	Maint. Approp.	(689,605)	(8,264)	110,122	145,377		23,894,036 ¹³
	Maint. Cost	3,999,053	14,923	109,828	146,524		23,893,883 ¹³
	Rehab. Approp.						1,154
	Rehab. Cost						1,154

⁶ Includes \$1,564,154 for previous proj.s. & appropriation & cost of \$16,596 for modification authorized for construction under authority of Sec. 107, 1960 R&H Act.

⁷ Includes appropriations & cost under appropriation n titles 96X3123 Operations and Maintenance & 96X5125 Maintenance and Operations of Dams and Other Improvements of Navigable Waters. Excludes \$201,960 contributed funds.

⁸ Includes \$805,272 for previous proj.s.

⁹ Includes \$39,784 for previous proj.s.

¹⁰ Includes \$811,250 for previous proj.s. Excludes \$11,000 contributed funds.

¹¹ Includes \$176,520 for previous proj.s.

¹² Includes \$736,967 for previous proj.s.

¹³ Includes \$104,900 for previous proj.s. Excludes \$154,500 contributed funds.

BUFFALO, NY DISTRICT

Table 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep 30, 2001
10. Fairport Harbor, NY	New Work Approp.						2,959,611 ¹⁴
	New Work Cost						2,959,611 ¹⁴
	Maint. Approp.		324,300	767,678	1,619,655	1,651,213	24,593,628
	Maint. Cost		526,685	857,370	1,616,193	1,659,137	24,592,714
11. Great Sodus Bay Harbor, NY	New Work Approp.						
	New Work Cost						
	Maint. Approp.		2,000	-	265,964	7,235	3,179,306
	Maint. Cost		2,007	-	265,879	7,320	3,179,306
	Rehab. Approp.						
	Rehab. Cost						
12. Huron Harbor, OH	New Work Approp.						5,103,795 ¹⁵
	New Work Cost						5,103,795 ¹⁵
	Maint. Approp.		681,900	665,734	655,338	57,723	23,548,285
	Maint. Cost		650,780	696,618	650,557	62,804	23,548,284
	Rehab. Approp.						247,030
	Rehab. Cost						247,030
(Contributed Funds)	New Work Approp.						63,079
	New Work Cost						63,079
13. Irondequoit Bay, NY	New Work Approp.						3,535,651
	New Work Cost						3,535,651
	Maint. Approp.			(17)	351,129	2,046	1,009,550
	Maint. Cost		341		350,677	2,498	1,009,550
(Contributed Funds)	New Work Approp.						2,718,077
	New Work Cost						2,718,077
14. Lorain Harbor, OH	New Work Approp.						22,240,670 ¹⁶
	New Work Cost						22,240,670 ¹⁶
	Maint. Approp.		1,590,930	459,130	1,211,476	1,261,238	40,895,993
	Maint. Cost		1,356,728	691,371	1,208,239	1,261,644	40,889,318
(Contributed Funds)	New Work Contrib.						845,551
	New Work Cost						845,551

¹⁴ Includes \$368,940 for previous projs.

¹⁵ Includes \$269,789 for previous projs.

¹⁶ Includes \$292,203 for new work for previous projs. Excludes \$3,000 contributed funds. Also excludes appropriation and cost of \$29,570 under authority of Sec. 197, 1960 R&H Act.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep 30, 2001
15. Oak Orchard, NY	New Work Approp.						1,586,996 ¹⁷
	New Work Cost						1,586,996 ¹⁷
	Maint. Approp.	(22,600)	(23)	152,932	60,861		794,690
	Maint. Cost	2,491		151,782	62,012		794,691
16. Oswego Harbor, NY	New Work Approp.						8,430,016 ¹⁸
	New Work Cost						8,430,016 ¹⁸
	Maint. Approp.	57,700	305,428	837,377	969,387		11,004,880 ¹⁹
	Maint. Cost	80,622	247,835	892,145	972,172		11,004,751 ¹⁹
	Rehab. Approp.						307,590
	Rehab. Cost						307,590
17. Owasco Outlet, Auburn, NY	New Work Approp						-
	New Work Cost						-
	Maint. Approp.		265,779	(20,790)	(10)		244,979
	Maint. Cost		263,848	(18,869)			244,979
	Rehab Approp.						-
	Rehab Cost						-
18. Port Clinton , OH	New Work Approp						-
	New Work Cost						-
	Maint. Approp.	37,014	(26)		27,828		1,099,782
	Maint. Cost	39,014			27,828		1,099,782
	Rehab Approp.						-
	Rehab Cost						-
19. Put-In-Bay, OH	New Work Approp.						-
	New Work Cost						-
	Maint. Approp.		87,392	181,240	(10,428)		258,204
	Maint. Cost		87,358	162,560	8,267		258,185
	Rehab. Approp.						-
	Rehab. Cost						-
20. Rochester Harbor, NY	New Work Approp.						2,439,308 ²⁰
	New Work Cost						2,439,308 ²⁰
	Maint. Approp.	17,804	1,006,392	23,578	698,445		25,685,936
	Maint. Cost	32,435	1,005,943	23,878	698,436		25,685,709
	Rehab. Approp.						-
	Rehab. Cost						-

¹⁷ Excludes \$224,702 contributed funds.

¹⁸ Includes \$1,187,977 for previous projs.

¹⁹ Includes \$945,684 for previous projs.

²⁰ Includes \$247,794 for previous projs.

BUFFALO, NY DISTRICT

Table 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep 30, 2001
21. Rocky River, OH	New Work Approp.						343,494
	New Work Cost						343,494
	Maint. Approp.		23,815	564,454	201,954	1,250,731	5,128,753
	Maint. Cost		23,815	564,426	196,597	1,241,236	5,113,873
22. Sandusky Harbor, OH	New Work Approp.						6,727,270 ²¹
	New Work Cost						6,727,270 ²¹
	Maint. Approp.		834,000	853,801	1,009,650	641,476	25,141,460
	Maint. Cost		788,162	900,228	959,348	691,909	24,141,399
	Rehab. Approp.						675,606
	Rehab. Cost						675,606
(Contributed Funds)	Maint. Contrib.						15,445
	Maint. Cost						15,445
23. Sturgeon Point, NY	New Work Approp.						1,718,700 ²²
	New Work Cost						1,718,140 ²²
	Maint. Approp.		13,000	17,063	21,685	21,284	130,448
	Maint. Cost		12,849	17,063	21,835	21,284	130,446
(Contributed Funds)	New Work Contrib.						1,299,008
	New Work Cost						1,299,008
24. Toledo Harbor, OH	New Work Approp.						17,191,842 ²³
	New Work Cost						17,191,842 ²³
	Maint. Approp.		4,192,300	3,358,834	2,770,943	2,819,520	128,688,949
	Maint. Cost		3,328,312	4,236,765	2,734,301	2,829,309	128,656,918
25. Toussaint River, OH	Maint. Approp.			403,122	141,957	254,149	799,800
	Maint. Cost			402,646	142,431	226,245	771,894
(Contributed Funds)	Maint. Contrib.			125,000	15,000	49,811	189,811
	Maint. Cost			77,625	52,772	59,413	189,810
26. Vermilion Harbor, OH	New Work Approp.						1,156,118 ²⁴
	New Work Cost						1,156,118 ²⁴
	Maint. Approp.		44,835	(7)	431,875	384,267	3,677,051
	Maint. Cost		56,864		430,738	385,404	3,677,051
	Rehab. Approp.						139,775
	Rehab. Cost						139,775

²¹ Includes \$477,149 for previous projs. Excludes \$325,000 contributed funds.

²² Excludes \$5,000 contributed funds.

²³ Includes \$1,624,695 for previous projs.

²⁴ Excludes \$740,679 contributed funds.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep 30, 2001
27. West Harbor, OH		New Work Approp.					3,303,898
		New Work Cost					3,303,898
		Maint. Approp.	58,351	(6,419)		51,311	2,037,188
		Maint. Cost	214,465			51,311	2,037,188
	(Contributed Funds)						
		New Work Contrib					3,795,000
		New Work Cost					3,795,000
28. Wilson Harbor, NY		New Work Approp.					535,246 ²⁵
		New Work Cost					535,246 ²⁵
		Maint. Approp.	9,671	(124)	195,068	17,593	1,174,753
		Maint. Cost	11,843		194,378	18,283	1,174,753
30. Lake Erie Cooley Canal, Lucas, OH		New Work Approp.	359,639	1,525,000	(64,000)	(15,000)	2,157,738
		New Work Cost	109,833	1,576,664	78,788	38,165	2,152,711
	(Contributed Funds)						
		New Work Contrib.	370,000	100,000			527,000
		New Work Cost	138,187	98,499	12,212	17,767	323,601
31. New York State Canal System, NY		New Work Approp.	378,000	3,422,000	3,355,000		7,155,000
		New Work Cost	44,413	3,750,616	3,359,703		7,154,732
32. Rochester Harbor, NY (Wave Surge)		New Work Approp.	-	-	(1,670,571)	(528,661)	1,800,769
		New Work Cost	51,617	235,536	(527,696)		1,800,769
	(Contributed Funds)						
		New Work Contrib.	(1,000,000)	(1,100,000)	(191,103)		1,713,189
		New Work Cost	44,008	(105,319)	525,064		1,713,189
SHORE PROTECTION							
33. Presque Isle Peninsula, Erie, PA		New Work Approp.	500,000	800,000	357,000	486,000	34,730,049
		New Work Cost	509,500	755,832	379,725	513,790	34,717,509
		Maint. Approp.					4,978
		Maint. Cost					4,978
	(Contributed Funds)						
		New Work Contrib.	474,000	800,000	520,000	580,000	25,789,869
		New Work Cost	517,453	819,876	303,080	518,659	25,505,646

²⁵ Includes \$57,342 for previous projs. Excludes \$166,998 contributed funds.

BUFFALO, NY DISTRICT

Table 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep 30, 2001
FLOOD CONTROL							
34. Mount Morris Lake, Genesee River, NY	New Work Approp.						23,365,559 ²⁶
	New Work Cost						23,365,559 ²⁶
	Maint. Approp.	2,036,000	2,751,577	2,577,432	1,776,256		36,303,316
	Maint Cost	2,015,118	2,978,997	2,540,550	1,754,897		36,204,549
35. Onondaga Storm Water Discharge, NY	New Work Approp.				264,256		3,670,256
	New Work Cost	586,033	981,480	1,064,543	51,506		3,660,905
	(Contributed Funds)	New Work Contrib.	3,691,500	-	(50,000)		3,641,500
		New Work Cost	54,433	1,877,871	1,432,202		3,464,506

²⁶ Includes study cost of \$117,000 under authority Sec 205, 1948 Flood Control Act. Excludes \$17,493 in contributed cost.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
1		ASHTABULA HARBOR, OH	
	Jun 3, 1896	Construction of breakwater.	Annual Report, 1895, p. 2132
	Mar 3, 1905 Jun 25, 1910	Enlarge outer harbor by extending west breakwater and constructing new east breakwater pier heads on lakeward ends of breakwaters; remove part of old east breakwater.	H. Doc. 654, 61st Cong., 2nd sess.
	Mar 2, 1919	Extend west breakwater to shore; dredge outer harbor to a depth of 20 feet.	H. Doc. 997, 64th Cong., 1st sess.
	Aug 30, 1935	Remove portion of east breakwater to extend breakwaters to present dimensions and dredging restrictions in portion of west basin.	H. Doc. 43, 73rd Cong., 1st sess.
	Aug 26, 1937	Dredge channel through outer harbor, channel of approach to Penn Central Co. slip, channel Ashtabula River, to and in turning basin all to present project dimensions; remove portion of old east inner breakwater and Maintenance to 24-foot depth of portion of outer harbor.	Rivers and Harbors Committee Doc. 78, 74th Cong., 2nd sess.
	Mar 2, 1945	Extend river channel to present project limit.	H. Doc. 321, 77th Cong., 1st sess.
	Sep 3, 1954	Dredging approach channel and turning basin in east outer harbor to 25-foot depth.	H. Doc. 486, 83rd Cong., 2nd sess.
	Jul 14, 1960	A depth of 29 feet in soft and 30 feet in hard material in entrance channel to just inside outer ends of Breakwaters, thence 28 feet in soft and 29 feet in hard material in a channel to inner breakwater, thence 27 feet in soft and 28 feet in hard materials in a channel extending to Penn Central Co. slip and extending 2000 feet up Ashtabula River, 22 feet in hard material in turning area; and 28 feet in soft and 29 feet in hard material in areas adjacent to 250-foot section of inner breakwater when that section is removed as now authorized.	H. Doc. 148, 86th Cong., 1st sess.
	Oct 27, 1965	Dredging approach channel and turning basin in east outer harbor to 28 feet in soft material and 29 feet in hard material.	H. Doc. 269, 89th Cong., 1st sess. ²⁷
2		BARCELONA HARBOR, NY	
	Mar 2, 1945	Harbor of refuge.	H. Doc. 446, 78th Cong., 2nd sess.
3		BLACK ROCK CHANNEL AND TONAWANDA HARBOR, NY	
	Aug 11, 1888 Jun 3, 1896	Dredging channel through horseshoe reef at outlet of Lake Erie and Tonawanda Inner Harbor to 16 feet.	
	Jun 13, 1902	Deepening Tonawanda Creek to 16 feet.	H. Doc. 143, 56th Cong., 1st sess. and Annual Report, 1900 p. 4152

²⁷ Contains latest published map.

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Jun 13, 1902 Aug 8, 1917	Dredging channel from Buffalo outer harbor to foot of Maryland St., Buffalo, to 21 feet.	H. Doc. 125, 56th Cong., 2nd sess., and Annual Report 1901, p. 3343
	Mar 3, 1905	Dredging channel from foot of Maryland St., Buffalo, to natural deep water pool upstream from Tonawanda Harbor to 21 feet; construction of ship lock and bridge; and repair of Bird Island pier towpath wall.	H. Doc. 428, 58th Cong., 2nd sess.
	Jul 27, 1916	Dredging channel along Tonawanda Island, with turning basin at its downstream end at the foot of the Island, to 21 feet.	H. Doc. 658, 63rd Cong., 2nd sess.
	Mar 2, 1919 Mar 2, 1945	Dredging triangular area at junction with Buffalo north Entrance channel.	H. Doc. 1004, 65th Cong., 2nd sess. & H. Doc. 92, 79th Cong., 1st sess. H. Doc. 981, 66th Cong., 2nd sess.
	Sep 22, 1922	Widening channel at foot of Maryland St., Buffalo.	H. Doc. 289, 68th Cong., 1st sess.
	Mar 3, 1925	Widening canal south of International Bridge and removal of westerly end of Rattlesnake Island shoal.	
	Jun 26, 1934 ²⁸	Operation and care of improvements provided for with funds from War Department appropriations for rivers and harbors.	
	Aug 30, 1935 ²⁹	Removal of rock shoals in Lake Erie entrance to canal, and in canal south of Ferry Street Bridge, to 22 feet; enlargement of North Tonawanda turning basin; extension of Bird Island Pier; improvement of guide pier at the lock; and elimination of upper 150 feet of Tonawanda Creek channel from the project. ³⁰	H. Doc. 28, 73rd Cong., 1st sess.
	Mar 2, 1945	Widening Lake Erie entrance to canal.	H. Doc. 92, 79th Cong., 1st sess. ²⁷
	Sep 3, 1954	Deepen lower 1,500 feet of Tonawanda inner harbor and enlarge turning basin.	H. Doc. 423, 83rd Cong., 2nd sess. ²⁷ ³¹
4		BUFFALO HARBOR, NY	
	May 20, 1826	Construction of south pier (extended in 1868). ³²	Annual Report, 1868, pp. 222 -232
	Jun 23, 1866	Construction of old breakwater. ³²	Annual Report, 1868, pp. 232 -236
	Jun 23, 1874	Extension of old breakwater. ³²	Annual Report, 1876, pt. 2, pp. 569 and 573
	Jun 3, 1896	Stony Point and south breakwater ³²	Annual Report, 1895, p. 3153. H. Doc. 72, 55th Cong., 1st sess., and Annual Report, 1897, p. 3245

²⁸ Permanent Appropriations Repeal Act.

²⁹ Authorized May 28, 1935 by Emergency Relief Administration Act of 1935.

³⁰ Improvement of guide pier at Black Rock Lock was de-authorized by Congress in Aug 1977.

³¹ Classified deferred.

³² Completed under previous projects.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Mar 3, 1899 North breakwater. ³² Mar 3, 1909		
	Jun 6, 1900 Deepening entrance channel to inner harbor and removing Jun 18, 1902 rock shoal therein.		Specified in acts.
	Mar 2, 1907 ³³ Dredging at entrance to canals at South Buffalo in outer harbor. ³²		Specified in act.
	Mar 2, 1907 South entrance breakwater. ³²		H. Doc. 240, 59th Cong., 1st sess.
	Jun 25, 1910 Extension of Federal project to Commercial St. and removal of Watson elevator site.		H. Doc. 298, Rivers and Harbors Committee Doc. 2, 61st Cong., 2nd sess.
	Jul 25, 1912 Deepening areas A, B, D, in outer harbor to 21 feet, C in north entrance to 23 feet.		H. Doc. 550, 62nd Cong., 2nd sess.
	Mar 2, 1919 Deepening areas F and G in outer harbor to 21 feet.		H. Doc. 1139, 64th Cong., 1st sess.
	Jan 21, 1927 Removal of shoal between entrance channel to Buffalo River and Erie Basin to 21 feet.		H.Doc. 481, 68th Cong., 2nd sess.
	Jul 3, 1930 Deepening areas H, I, and K in outer harbor 21 feet.		Rivers and Harbors Committee Doc. 1, 71st Cong., 1st sess.
	Aug 30, 1935 ³⁴ Extension of south entrance and south breakwaters, deepening outer harbor to present project dimensions, and removal of shoals on approach to south entrance.		H. Doc. 46, 73rd Cong., 1st sess.
	Aug 30, 1935 Maintenance of channels in Buffalo River and Buffalo ship Mar 2, 1945 ³⁴ canal to 21 feet in cooperation with City of Buffalo.		Rivers and Harbors Committee Doc. 54, 74th Cong., 1st sess.
	Jul 14, 1960 Deepening North and Buffalo River entrance channels, and deepening and maintaining Buffalo River and Buffalo ship canal to present project dimensions.		H. Doc. 352, 78th Cong., 1st sess.
	Oct 23, 1962 Deepening approach to south entrance channels, and deepen to 30 feet in outer area and 29 feet in inner area of southerly part of outer harbor.		H. Doc. 151, 86th Cong., 1st sess.

³³ Also Sundry Civil Act of Mar 3, 1905

³⁴ Authorized in part by Public Works Administration, Sep 6, 1933.

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
		Deepening portion of outer harbor to 27 feet over a width of 500 feet for 2,500 feet northward from 28-foot project area, widening within 1,700 feet to limits within 150 feet of breakwater axis and 75 feet from harbor line and continuing within these limits for 7,000 feet. Elimination of 25-foot wide strip between presently authorized and proposed easterly dredging limits easterly 50 foot wide undredged strip in existing 23-foot depth project area, extending northerly from 27-foot depth to Buffalo River entrance channel. Previously authorized but uncompleted portions of work authorized by 1935 Act, combined within this act as a single improvement.	H. Doc. 451, 87th Cong., 2nd sess.
	Jul 14, 1960 As amended	Removal of abandoned abutments of South Michigan Bridge.	Sec. 107, PL 86-645. Authorized Chief of Engineers Dec 15, 1980
5		BUFFALO HARBOR, NY ENVIRONMENTAL DREDGING	
	Nov. 28, 1990	The Secretary may remove, as part of operation and maintenance of a navigation project, contaminated sediments outside the boundaries of and adjacent to the navigation channel. The Secretary may remove contaminated sediments from the waters of the United States, in general, for the purpose of environmental enhancement and water quality improvement if such removal is requested by a non-Federal sponsor and the sponsor agrees to pay 50% of the cost of the removal.	PL 101-640
	Oct. 12, 1996	Amended PL 101-640 to include Buffalo Harbor, NY as priority work.	PL 104-303
6		CLEVELAND HARBOR, OH	
	Mar 3, 1875	West breakwater.	Annual Report, 1876, p. 558
	Aug 5, 1886	Part of east breakwater. ³²	H. Ex. Doc. 116, 48th Cong., 2nd Sess., and Annual Report, 1886, p. 1865
	Aug 11, 1888	Extension of east breakwater.	H. Ex. Doc. 189, 50th Cong., 2nd sess., and Annual Report, 1888, p. 2005
	Jun 3, 1896	Reconstruction of piers. ³²	H. Doc. 326, 54th Cong., 1st sess., and Annual Report, 1896, p. 2949
	Mar 3, 1899	Dredging channel between piers and outer harbor to depth of 19 feet; dredging to depth of 23 feet in any portion of harbor is discretion of Secretary of War.	H. Doc. 156, 55th Cong., 2nd sess., and Annual Report, 1899, pp. 3075 and 3078
	Jun 13, 1902	Arrowhead breakwater and extension of east breakwater.	H. Doc 118, 56th Cong., 2nd sess.
	Mar 2, 1907 Jun 25, 1910	Removal of deflecting arm of old east breakwater and closure of gap between old and new east breakwaters.	No printed report.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Jul 27, 1916	Pierhead at easterly end of east breakwater.	H. Doc 891, 63rd Cong., 2nd sess.
	Aug 8, 1917	Maintenance and improvement of channels in Cuyahoga	H. Doc. 707, 63rd Cong., 2nd sess.,
	Aug 29, 1937	and Old Rivers to a depth of 21 feet to a point 2,000 feet upstream from Clark Ave. viaduct and 18-foot turning basin.	& Rivers and Harbors Committee Doc. 84, 74th Cong., 2nd sess.
	Aug 30, 1935 ³⁵	Deepening outer harbor and channel between piers to present project dimensions, construction of 400-foot spur breakwater at gap in shore arm of west breakwater, removal of easterly 150 feet of west breakwater, elimination from project of a 298-foot southerly extension on west pier, and abandonment of inner 932 feet of shore arm of west breakwater.	H. Doc. 477, 72nd Cong., 2nd sess.
	Aug 30, 1935 ³⁴	Maintenance dredging in Cuyahoga and Old Rivers for 1 year as an emergency measure.	Rivers and Harbors Committee Doc. 39, 74th Cong., 1st sess.
	Mar 2, 1945 ³⁶	Maintenance extension of Cuyahoga River channel. Extension, maintenance, and improvement to a depth of 21 feet of Cuyahoga River channel to present project limit. ^{37 38}	Specified in act. H. Doc. 95, 79th Cong., 1st sess.
	Jul 24, 1946	Improvement of Cuyahoga and Old Rivers to a depth of 23 feet and replacement or pier construction of 7 railroad bridges. ³⁹	H. Doc. 629, 79th Cong., 2nd sess.
	Jul 3, 1958	Deepening channel 25 feet through east basin of outer harbor; replacement of Erie-Lackawanna Railroad bridge over Cuyahoga River at mile 4.1 and widening of channel at that point, with elimination of reconstruction of east pier of bridge as previously authorized; and replacement of Baltimore and Ohio Railroad Bridge over Old River near its mouth and Willow Avenue Highway Bridge about 800 feet above mouth and widening channel at four locations along lower, 2,000 feet of river. ⁴⁰	H. Doc. 107, 85th Cong., 1st sess.
	Jul 14, 1960	Depth of 29 feet in lake approach to main entrance; 28 feet in entrance channel to lakeward ends of piers at mouth of Cuyahoga River; 27 feet in river to a point just above its junction with Old River, and in Old River to upstream limit of present 23-foot project; 28 feet in west basin within existing project limits as modified to eliminate a triangular area at west end and to extend limits to a line parallel to and 75 feet from harbor line; and 28 feet in westerly 800 feet of east basin. ⁴¹	H. Doc. 152, 86th Cong., 1st sess. ²⁷

³⁵ Authorized by Public Works Administration, Sep 6, 1933.³⁶ First Deficiency Appropriations Act approved Apr 1, 1944.³⁷ Deepening left half of channel extension was eliminated from project by 1962 R&H Act.³⁸ Authorized by Defense Plant Corp. May 19, 1942.³⁹ Widening Cuyahoga River downstream at end of Cut 4 classified inactive.⁴⁰ Replacement of bridges 19 and 32, widening Cuyahoga and Old River Channels, classified deferred.⁴¹ Deepening remainder of Cuyahoga River from Bridge 1 to and including Old River, classified deferred.

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Oct 23, 1962	An area in east basin 27 feet deep extending 3,800 feet easterly of 28-foot area with project limits 380 feet from east breakwater and on landward side generally by a line 75 feet lakeward of and parallel to harbor line. A dock channel to Nicholson Cleveland Terminal Co. pier, at easterly end of east basin, from 25-foot contour to a limit 75 feet north of pierhead line, 400 feet wide at shoreward end and flared toward the lake.	H. Doc. 527, 87th Cong., 2nd sess.
	Jul 14, 1960 As amended	Deepening upper end of Old River channel from 21 to 27 feet.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Dec 6, 1966
	Oct 22, 1976	Preparation of Phase I design memorandum for improvements consisting of removal of portions of entrance breakwater; construction of breakwater; construction of breakwater extension of east entrance; deepening approach and entrance channels; construction of diked disposal area; and installation of recreational fishing facilities on west breakwater.	Sec. 175, PL 94-587
	Aug 15, 1985	Deepening and widening east entrance and approach channels, deepening the east basin channel and disposing of dredge material in an existing disposal site, as described in the Report to the Board of Engineers for Rivers and Harbors Jan 22, 1985, including bulk heading and other necessary repairs at Pier 34 and approach channels and necessary protective structures for mooring basins for transient vessels in the area south of Pier 34 and including such modifications as may be recommended by the Chief of Engineers at a cost not to exceed \$36,000,000.	PL 99-88
	Nov 17, 1986	Bulk heading and other necessary repairs at Pier 34 and approach channels and necessary protective structures for mooring basins for transient wells in the area south of Pier 34.	Sec. 202, PL 99-662. PL 100-202
	Dec 21, 1987	Appropriates and directs the Secretary of the Army to use the sum of \$11,000,000 which is to remain available until expended to carry out the provisions for the harbor modifications contained in PL 99-662.	Doc. 653, 61st Cong., 2nd sess.
7		CONNEAUT HARBOR, OH	
	Jun 25, 1910	Extension of east breakwater, construction of new west breakwater, removal of portion of old west breakwater, and dredging of outer harbor to 19 feet.	

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Aug 8, 1917 ⁴²	Realignment of west breakwater, removal of remainder of old west breakwater, and deepening outer harbor to 20 feet. Removal of Bessemer & Lake Erie R.R. Co. of inner 635 feet of west pier.	H. Doc. 983, 64th Cong., 1st sess.
	Aug 30, 1935 ³⁴	Removal of portion of west breakwater, extension of breakwaters to present project dimensions, construction of pierheads on outer ends of breakwaters, deepening outer harbor to present project dimensions; removal of portions of river pier, and elimination from project of a 255-foot shoreward extension of west breakwater.	H. Doc. 48, 73rd Cong., 1st sess.
	Oct 23, 1962	Deepening easterly part of outer harbor to 28 feet in soft material and 29 feet in hard material; deepening remaining triangular area of outer harbor to 22 feet in soft material and 23 feet in hard material; deepening inner harbor for 2,450 feet upstream of outer end of west pier to 27 feet in soft material and 28 feet in hard material; removal of east pier, extension of east breakwater to shore; and an access channel 8 feet deep in outer harbor to city dock. Previously authorized, but uncompleted portion of work authorized by 1917 and 1935 Acts combined with this act for accomplishment as a single improvement.	H. Doc. 415, 87th Cong., 2nd sess.
	Oct 12, 1996	De-authorized the most southerly 300 feet of the 1,670 foot long shore arm, authorized by the R&H Act of 1910.	PL 104-303
8	DUNKIRK HARBOR, NY		
	Mar 2, 1827	Construction of west pier. ^{32 43}	S. Ex. Doc. 42, 35th Cong., 1st sess. and Annual Report 1866 pt. IV, p. 155
	Mar 2, 1867	Breakwater and evacuation of entrance channel to 13 feet. ³²	Annual Report, 1871, p. 214
	Jun 3, 1896	Deepening of entrance channel and harbor basin to a depth of suitable for vessels of 16-foot draft.	H. Doc. 63, 54th Cong., 1st sess.
	Jun 25, 1910	Removal of rock reef bordering the inner entrance channel.	H. Doc. 720, 61st Cong., 2nd sess.
	Jun 30, 1948	Deepening outer entrance channel to present project depths; removal of rock shoal on the west side of the entrance channel to a depth of 17 feet, and changed limits of the inner entrance channel and basin to present project dimensions.	H. Doc. 632, 80th Cong., 2nd sess. ²⁷
	Dec 15, 1970	Construction of small-boat harbor.	H. Doc. 91-423, 91st Cong., 2nd sess.

⁴² Permit of Secretary of War, Aug 5, 1927.

⁴³ Modified 1828 and 1852.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	(House Public Works Committee) Jun 22, 1971 (Senate Public Works Committee) Sec. 201 of F.C. Act of 1965		
9	ERIE HARBOR, PA		
	May 26, 1824	Breakwaters and piers; dredging entrance channel; and brushwood protection of beach of Presque Isle peninsula. ³²	Annual Report, 1915, p. 1965
	Mar 3, 1899	Deeping channel and harbor basin 18 feet, repair and extension of piers; and plant growth and emergency protection of work on peninsula.	H.Doc.70, 55th Cong., 1st sess. and Annual Report, 1896, p. 3237 ⁴⁴
	Jun 15, 1910	Deepening channel and part of harbor to 20 feet.	Rivers and Harbors Committee Doc. 26, 61st Cong., 2nd sess.
	Nov 28, 1920 ⁴⁵	Re-conveyed Presque Isle peninsula to the State of Pennsylvania for park purposes.	
	Aug 30, 1935	Deepening, widening, and straightening entrance channel, dredging channel at easterly end of harbor basin, all to present project dimensions; elimination of north breakwater from project; and limitation of south breakwater to a length of 1,200 feet.	H. Doc. 52, 73rd Cong., 1st sess.
	Mar 2, 1945	Protection of the peninsula south of the waterworks settling basin.	Specified in act.
	Sep 3, 1954	Widen 25-foot deep approach channel to ore dock.	H. Doc. 345, 83rd Cong., 2nd sess.
	Jul 14, 1960	Depth of 29 feet in the entrance channel to a point opposite the inner end of the north pier, thence 28 feet in soft material and 29 feet in hard material in the remainder of the entrance channel, within the general limits of the 25-foot basin and inner channel opposite the ore dock except as modified to eliminate from the project a triangular area along the easterly side; and a depth of 28 feet over 300-foot westward extension of the 25-foot basin. ⁴⁶	H. Doc. 199, 86th Cong., 1st sess.
	Oct 23, 1962	Depth of 27 feet in soft material and 28 feet in hard material in approach area to Duquesne Marine Terminal. Previously authorized but uncompleted portion of work authorized by 1935 Act is combined with this act as a single improvement.	H. Doc. 340, 87th Cong., 2nd sess. ²⁷

⁴⁴ Extension of north pier portion of this modification was deauthorized Nov 1981.

⁴⁵ Public Law 366.

⁴⁶ Deepening strips adjacent to north and south piers was deauthorized Aug 1982.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
10		FAIRPORT HARBOR, OH	
	Mar 3, 1825 ⁴⁷	Construction of piers.	Annual Report, 1889, pp. 2147-2153
	Jun 3, 1896 Mar 3, 1905	Breakwaters and dredging outer harbor to a depth of 18 feet.	H. Doc. 347, 54th Cong., 1st sess. and Annual Reports, 1896, p. 2956; 1903, p. 2084. 1905, p. 2349
	Mar 2, 1919	1,400-foot extension of east breakwater, present project dimension of east pier, and deepening to 19 feet.	H. Doc. 206, 63rd Cong., 1st sess.
	Jan 21, 1927 Jul 3, 1930	4,000-foot extension of east breakwater at limit of cost to the United States of \$715,000.	H. Doc. 592, 69th Cong., 2nd sess. Rivers and Harbors Committee Doc 13, 70th Cong., 1st sess.
	Aug 30, 1935 ⁴⁸	Deepening of outer harbor and entrance channel to present dimensions; extending the west breakwater to present project dimensions with pierhead at its outer end; removal of west pier, and construction of bulkhead on west side of river channel.	H. Doc. 472, 72nd Cong., 2nd sess.
	Aug 26, 1937	Dredging of 21 and 24-foot river channels and turning basin in Grand River to present project dimensions.	Rivers and Harbors Committee Doc. 79, 74th Cong., 2nd sess.
	Jul 24, 1946	Dredging of 8-foot river channel.	H. Doc. 706, 79th Cong., 2nd sess. ²⁷
11		GREAT SODUS BAY HARBOR, NY	
	Mar 2, 1829	Construction of piers and breakwater. ⁹	Annual Report, 1876 pt. II p. 589
	Aug 2, 1882	Extension of piers to 15-foot contour in the lake.	Annual Report, 1881, p. 2442
	Mar 3, 1925	Deepening and widening of channel to 180 foot depth and 150 foot width.	H. Doc. 192, 68th Cong., 1st sess.
	Jul 3, 1930	Widening channel lakeward of piers to 250 feet.	Rivers and Harbors Committee Doc. 17, 70th Cong., 1st sess.
	Aug 30, 1935	Dredging channel to present project dimensions.	Rivers and Harbors Committee Doc. 23, 72nd Cong., 1st sess.
12		HURON HARBOR, OH	
	Mar 2, 1905	Extension of west pier, construction of east breakwater, removal of part of old east pier; deepening of channel to 19 feet; and dredging of sheltered area.	H. Doc. 122, 58th Cong., 2nd sess.
	Mar 2, 1919	Widening river to 200 feet; removal of remainder of old east pier, construction of new spur pier, enlargement of sheltered area; and closure of beach at shore end of west pier.	H. Doc. 5, 63rd Cong., 1st sess.

⁴⁷ Modified 1830, 1881, and 1890. New work completed under previous projects.⁴⁸ Partly included in Public Works Administration Program, Nov 15, 1933.

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Aug 30, 1935 ⁴⁸	Extension of west pierhead at its outer end; removal of outer end of east breakwater and construction pierhead on new outer end; widening and deepening channel to present project dimensions; enlargement of turning basin at head of channel; shore protection west of west pier, and elimination from project construction of spur pier and dredging sheltered area outside channel limits.	H. Doc. 478, 72nd Cong., 2nd sess.
	Oct 23, 1962	Depths of 29 feet in approach channel, 28 feet in entrance channel, 27 feet in river channel, 21 feet in turning basin and abandonment of lakeward end of existing approach channel.	H. Doc. 165, 87th Cong., 1st sess. ²⁷
13		IRONDEQUOIT BAY, NY	
	Jul 3, 1958	Construction entrance channel 9 feet deep and 100 feet wide, extending from 9-foot depth in Lake Ontario to junction with inner bay channels, a distance of about 1,300 feet; inner channel, 8 feet deep and 100 feet wide, from entrance channel to deep water in bay, a distance of about 3,035 feet, access channel 8 feet deep, 100 feet wide and 500 feet in length from the inner bay channel to the west; two stone rubble-mound structures 1,350 feet and 750 in length at the natural entrance; and recreational facilities.	H. Doc. 332, 84th Cong., 2nd sess.
14		LORAIN HARBOR, OH	
	Mar 3, 1899	Breakwaters and extension of piers to present dimensions.	H. Doc. 131, 55th Cong., 2nd sess., and Annual Report 1898, p. 2718.
	Mar 2, 1907	Extend 18-foot channel from inner end of piers to Erie Avenue Bridge.	H. Doc. 560, 60th Cong., 1st sess.
	Jun 25, 1910	Extend breakwaters and dredge to depth of 19 feet in outer harbor.	H. Doc. 644, 61st Cong., 2nd sess.
	Aug 8, 1917	Extend breakwaters to present dimensions.	H. Doc. 980, 64th Cong., 1st sess.
	Aug 8, 1917	Deepen outer harbor and river channel of Erie Avenue Bridge to 20 feet.	H. Doc. 985, 64th Cong., 1st sess.
	Jul 3, 1930	Extend 20-foot channel to American Shipbuilding Co. Drydock.	H. Doc. 587, 69th Cong., 2nd sess.
	Aug 30, 1935	Widen 2 bends in river and enlarge turning basin opposite National Tube Co. dock. ³⁵	H. Doc. 469, 72nd Cong., 2nd sess.
	Aug 30, 1935	Approach channel to municipal pier.	Senate Committee print, 73rd Cong., 2nd sess.
		Deepen outer harbor and river channel to American Shipbuilding Co. Drydock 2 present project dimensions and extension of river channel to upper end of National Tube Co. dock with turning basin opposite that dock. Maintenance dredging in Black River from American Shipbuilding Co. Drydock 2. Upper end of	Doc. 51, 74th Cong., 1st sess. Rivers and Harbors Committee

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
		National Tube Co. dock was authorized Apr 7, 1934, by Public Works Administration.	
	Aug 30, 1935	Enlarging turning basin opposite National Tube Co. Dock to present project dimensions.	Specified in act.
	Mar 2, 1945	Turning basin in bend of Black River immediately upstream from Baltimore & Ohio RR coal dock.	H. Doc. 161, 77th Cong., 1st sess.
	Jul 14, 1960	Replace Norfolk and Western Railway swing bridge with a vertical lift bridge; construct two detached arrowhead breakwaters lakeward of existing breakwaters; construct extension of east breakwater, to shore; remove 300 feet of lakeward end of west breakwater; remove outer 1,100 feet east pier; deepen lake approach to 29 feet, 800-foot wide outer harbor channel to 27 feet; widen river channel at bends; and construct a new turning basin 21 feet deep near upstream limit of existing project. ⁴⁹	H. Doc. 166, 86th Cong., 1st sess.
	Jul 14, 1960 As amended	Construction of a 225 foot detached rubble mound breakwater and an 800 foot long rubble mound breakwater attached to the east breakwater shore arm I in the east basin of the outer harbor.	Sec. 107, PL 86-645. Authorized Chief of Engineers Mar 12, 1986
	Nov 17, 1986	Two bed cuts on Black River between the Norfolk and Western Railroad Bridge and 21st Street Bridge, excavated to existing channel depth of 27 feet. Widening Upper Turning Basin at existing authorized depth of 21 feet. ³¹	H. Doc. 124, 99th Cong., 1st sess.
15		MT. MORRIS LAKE, GENESEE RIVER, NY	
	Dec 22, 1944	Construction of a concrete gravity dam and reservoir. Construct a visitor center at Mt. Morris Dam to be known as the "William B. Hoyt II Visitor Center."	H. Doc. 615, 78th Cong., 2nd sess. Sec. 103, PL 102-580
16		NEW YORK STATE BARGE CANAL	
	Nov 17, 1986	Authorizes the Secretary to reimburse the State of New York for 50% of the cost of operating, maintaining and rehabilitating The New York State Barge Canal. The Federal contribution shall be limited in any fiscal year to \$5,000,000, or 50% of the expenditures in that fiscal year, whichever is the lesser. ³¹	PL 99-662
	Oct 12, 1996	The Secretary may make capital improvements to the New York State Canal System for the purposes of rehabilitation, renovation, preservation, and maintenance of the New York State Canal System and its related facilities. The Federal share of the cost of capital improvements shall be 50%, up to a limit of \$8,000,000.	PL 104-303
17		OAK ORCHARD, NY	
	Mar 2, 1945	Harbor of refuge.	H. Doc. 446, 78th Cong., 2nd sess.

⁴⁹ Deepening and widening remainder of Black River Channel at Cut 1 has been de-authorized.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Oct 12, 1996	De-authorized a part of the Section 107 Small Boat Basin Authorized by R&H Act of 1960, as amended.	PL 104-303
18		ONONDAGA LAKE, NY	
	Nov 16, 1990	The Assistant Secretary of the Army for Civil Works, The administrator of the Environmental Protection Agency, and the Governor of the State of New York, acting jointly, shall convene a management conference for the restoration and management of Onondaga Lake. The purpose of the conference shall include the development, in the 2-year period beginning on the date of enactment of this fact, for a Reaffirmation of PL 101-596.	PL 101-596
	Nov 28, 1990	The Secretary is authorized to design and construct projects to address water quality problems associated with storm water discharges from large storm events for the watershed areas of Onondaga County and Syracuse, New York, from which waters discharge into Onondaga Lake, New York. The design of projects shall ensure the development of effective Federal and non-Federal actions which will contribute toward compliance with the Federal Water Pollution Control Act. Total project cost shall be shared at 75% Federal and 25% non-Federal. Operation and maintenance cost shall be 100% non-Federal.	PL 101-640
	Oct 31, 1992	Onondaga County and Syracuse, New York, from which waters discharge into Onondaga Lake, New York. The design of projects shall ensure the development of effective Federal and non-Federal actions which will contribute toward compliance with the Federal Water Pollution Control Act. Total project cost shall be shared at 75% Federal and 25% non-Federal. Operation and maintenance cost shall be 100% non-Federal.	PL 102-580
19		OSWEGO HARBOR, NY	
	Jul 11, 1870	Construction of outer west breakwater. ³²	Annual Report, 1870, pp. 54, 220 and 221
	Mar 2, 1907	Repair of outer west breakwater under Plan (A). ⁴⁰	H. Doc. 55, 58th Cong., 2nd sess.
	Jul 3, 1930	Construction of arrowhead breakwaters; deepening outer harbor between arrowhead breakwaters; west outer harbor east of Erie-Lackawanna coal dock, and Oswego River north of Seneca St., to 21 feet; and deepening west outer harbor, west of Erie-Lackawanna coal dock, to 16 feet. ⁵⁰	Rivers and Harbors Committee Doc. 24, 71st Cong., 2nd sess.
	Aug 30, 1935	Widening channel to harbor line in Oswego River north of Seneca Street.	Rivers and Harbors Committee Doc. 7, 74th Cong., 1st sess.
	Oct 17, 1940	Closing gap in west breakwater; deepening west outer harbor, west of east line of Erie-Lackawanna coal dock, to project depth. ⁵¹	H. Doc. 96, 76th Cong., 1st sess.
	Jun 30, 1948	Construction of east outer breakwater; removal of the inner end of east arrowhead breakwater; and dredging channel and basin in east outer harbor. ⁵²	H. Doc. 722, 80th Cong., 2nd sess.
	Sep 3, 1954	Construction of detached breakwater at harbor entrance and removal of shoals in approach to harbor entrance to 25 feet deep.	H. Doc. 487, 81st Cong., 2nd sess.

⁵⁰ Deepening a 200-foot strip along harbor line east of mouth of Oswego River is de-authorized.

⁵¹ Deepening to 22 feet a 150-foot wide strip in west outer harbor de-authorized in May 1981.

⁵² Modification eliminated by River and Harbor Act of Oct 26, 1962.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Oct 23, 1962	Depth of 27 feet in lake approach channel; 25 feet deep in outer harbor channel 800 feet wide from entrance gap to a turning basin 25 feet deep about 750 by 1,100 feet, at mouth of Oswego River; depth of 24 feet in earth and 25 feet in hard material in river channel from turning basin to upstream end of Port of Oswego Authority's east side terminal, a distance of about 1,600 feet; relocation of Federal project limits in Oswego River upstream of 24-foot channel to Federal project limit at north line of West Seneca St., on lines parallel to 50 feet channel ward of established harbor lines; elimination of maintenance of inner west breakwater and elimination of modification authorized by River and Harbor Act of 1948.	H. Doc. 471, 87th Cong., 2nd sess.
	Oct 12, 1996	De-authorized the portion of the Federal Channel authorized by the R&H Act of 1910 as amended by the R&H Act of 1935, from the southernmost alignment of the Route 68 Bridge upstream to the northernmost alignment of the Lake St. Bridge.	PL 104-303
20		OWASCO OUTLET, AUBURN, NY	
	Jul 21, 1997	Study, design, and prepare plans and specifications for rehabilitation of the seawall at the outlet of Owasco Lake	H. Doc. 190, 105th Cong., 1st sess.
21		PORT CLINTON HARBOR, OH	
	Jun 10, 1872	Parallel stone and pile jetties at mouth of river, east jetty 2,200 feet long and west jetty 1,980 feet long extending to 10-foot contour in lake channel 10 feet deep and 100 feet wide for outer 4,200 foot length and 200 feet wide for inner 800 foot length to Highway Bridge.	Annual Report, 1875, p. 295
22		PRESQUE ISLE PENINSULA, ERIE, PA	
	Sep 3, 1954	Construction of groin system, seawall, bulkhead, placement of beach material at waterworks reservation and along remainder of peninsula; removal of portions of existing structures.	H. Doc. 231, 81st Cong., 1st sess.
	Jul 14, 1960	Periodic nourishment of shores for a 10-year period.	H. Doc. 397, 86th Cong., 2nd sess.
	Mar 7, 1974	Periodic nourishment of shore for a 5-year period.	H. Doc. 796, 93rd Cong., 2nd sess.
	Oct 22, 1976	Preparation of Phase I design memorandum for improvements consisting of construction of five sections of spaced offshore breakwaters and replenishment of beach area with sand fill.	Sec. 101, PL 94-587
	Nov 17, 1986	Construct offshore breakwaters and restore beaches.	Sec. 501, PL 99-662
23		PUT-IN-BAY, OH	
	July 7, 1937	Recommended the improvement of Put-in-Bay, Ohio to provide a channel of varying width, not exceeding 225 feet and 14 feet deep from that depth in the laketo a point 150 feet west of the Fox Wharf, thence 100 feet wide and 8 feet deep along the harbor frontage to the vicinity of Miller's Wharf, a further distance of 1,600 feet; provided that no dredging shall be done by the United States closer than 25 feet to existing structures.	H. Doc. 41, 75th Cong. 1st sess. Rivers and Harbor Committees

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
24		ROCHESTER, HARBOR, NY	
	Mar 2, 1829	Construction of piers. ³²	Annual Report, 1874, p. 247
	Aug 2, 1882	Extension of piers to 15 foot contour in the lake. Concrete superstructure on piers. ³²	Annual Report, 1881, p. 2437; Annual Report, 1905, p. 2383
	Jun 25, 1910	Deepening channel to 20 feet.	H. Doc. 342, 61st Cong., 2nd sess.
	Aug 30, 1935 ²⁹	Dredging of the entrance channel and turning basin, and the elimination of the inner ends of the east and west piers, all to present project dimensions.	H.Doc. 484, 72nd Cong., 2nd sess.
	Mar 2, 1945	Maintenance of existing channel upstream of the Penn Central Co. Bridge.	H. Doc. 139, 76th Cong., 1st sess.
	Jul 14, 1960	Depth of 24 feet in the channel from the lake to the west pier, a depth of 23 feet between the piers and in the lower river to the Penn Central Co. Bridge, including the existing turning basin; a depth of 21 feet from the bridge to the upstream project limit, with suitable widening at the bends; and, stream turning basin 21 feet deep and 650 feet wide adjacent to the improved channel, with two mooring dolphins.	H. Doc. 409, 86th Cong., 2nd sess. ²⁷
	Nov 28, 1990	A navigation project for the mouth of the Genesee River in Rochester, New York, by development and implementation of wave surge control measures. Project to be carried out under Section 107 of the River and Harbor Act of 1960 (33 U.S.C. 577).	PL 101-640
25		ROCKY RIVER HARBOR, OH	
	Jun 10, 1872	East pier and dredging of channel.	Annual Report 1871, p. 211
	Aug 26, 1937	Extension of east pier and deepening channel to present project dimensions.	H. Doc. 70, 75th Cong., 1st sess.
	Oct 27, 1965	Realign and extend channel and construct an anchorage basin.	H. Doc. 352, 88th Cong., 2nd sess.
26		SANDUSKY HARBOR, OH	
	Mar 3, 1899	Construction of channel protection works.	H. Doc. 362, 55th Cong., 2nd sess. and Annual Report 1898, p. 2708
	Jun 13, 1902	Widening of Straight and Dock channels and deepening to 19 feet.	H. Doc. 120, 56th Cong., 2nd sess.
	Mar 2, 1919	Extension of east jetty to total length of 6,000 feet, with pierhead on outer end; deepening of the outer, straight, and easterly portion of dock channel to 20 feet.	H. Doc. 982, 64th Cong., 1st sess.
	Jan 21, 1927	Deepening of dock channel to 22 feet.	H. Doc. 584, 69th Cong., 2nd sess.
	Aug 30, 1935	Enlargement of turning basin and construction rock dike.	Rivers and Harbors Committee Doc. 2, 73rd Cong., 1st sess.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Oct 2, 1945	Maintenance of bay channel to 22 feet; and elimination from project of portion of turning basin and rock dike.	H. Doc. 328, 76th Cong., 1st sess.
	Jul 14, 1960	Extending Moseley channel and deepening that channel and the outer end of Straight channel to 26 feet, from deep water in the lake to the vicinity of Cedar Point dock; widening the bend at the junction of the Moseley and Straight channels to 25 feet from the vicinity of Cedar Point dock to Junction Bay channel; deepening the Bay channel from the junction with the Straight channel to the outer end of the Pennsylvania Coal dock no. 3 to 24 feet, thence from outer end of the coal dock to the turning basin to 24 feet in removal of approximately 300 feet of the rock dike, and deepening to 24 feet in soft material and 25 feet in hard.	
27		STURGEON POINT, EVANS, NY	
	Jul 14, 1960	Rehabilitate existing breakwater, construct rubble mound, west breakwater extension, construct rubble mound east breakwater, a shore revetment and dredging.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Oct 21, 1987.
28		TOLEDO HARBOR, OH	
	Mar 3, 1899	A channel 400 feet wide and 21 feet deep from 25-foot contour in Maumee Bay to Fassett Street Bridge, 200 feet wide and 19 feet deep above that point and a 500-foot turning basin at upper end. A stone re-vetted earth dike in Maumee Bay channel.	H. Doc. 198, 55th Cong., 2nd sess. and Annual Report 1898, p. 2693
	Jun 25, 1910	Act 1899 modified to insure a navigable channel to 21 feet from Fassett Street Bridge to lake.	H. Doc. 865, 60th Cong., 1st sess.
	Aug 30, 1935	Channel 25 feet deep and 500 feet wide from 25-foot contour to mouth of Maumee River (300 feet wide on each side of center dike in bay channel), thence 400 feet wide to Fassett Street Bridge, 200 feet wide above that point and a turning basin at upper end 18 feet deep.	River and Harbors Committee Doc. 21, 72nd Cong., 1st sess.
	May 17, 1950	Widening at bend of mouth of River opposite Chesapeake and Ohio Railway Dock.	H. Doc. 189, 81st Cong., 1st sess.
	Sep 3, 1954	Removal of center dike in Maumee Bay channel.	H. Doc. 620, 81st Cong., 2nd sess.
	Jul 3, 1958	Enlarge widening at bend opposite Chesapeake and Ohio dock and turning basin opposite American Shipbuilding Co. dock.	H. Doc. 436, 84th Cong., 2nd sess.
	Jul 14, 1960	Deepening Bay channel including widening to 28 feet, deepen river channels to NY Central Railroad bridge to 27 feet and construct new turning basin below Anthony Wayne Bridge.	H. Doc. 153, 86th Cong., 1st sess. ²⁷
29		TOUSSAINT RIVER, CARROLL TWSP., OH	
	Jul 14, 1960	Dredged channel from the mouth of the Toussaint River, 2,100 feet into Lake Erie, 4 feet below LWD, 150 feet wide in Lake Erie and tapered to 100 feet at the river mouth.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Sep 29, 1990.

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
30		VERMILION HARBOR, OH	
	Jul 4, 1836	Parallel piers and dredging channel to 8 feet deep.	Annual Report, 1880
	Mar 3, 1875	Deepening of channel to 12 feet.	Annual Report, 1874, p. 219
	Mar 3, 1905	Reconstruction of piers.	H. Doc. 252, 58th Cong., 2nd sess.
	Jul 3, 1958	New entrance formed by two overlapping arrowhead breakwaters and extension of existing river channel upstream to Liberty St. Bridge.	H. Doc. 231, 85th Cong., 1st sess.
31		WEST HARBOR, OH	
	Oct 27, 1965	Construction of arrowhead breakwaters, entrance channel and access channel.	H. Doc. 245, 88th Cong., 2nd sess.
32		WILSON HARBOR, NY	
	Mar 2, 1945	Entrance channel 80 feet wide and 8 feet deep; and restore east and west piers.	H. Doc. 679, 76th Cong., 2nd sess.
	Aug 3, 1968	Extend existing channel 300 feet; and construct new channel 3,800 feet long through Tuscarora Bay.	H. Doc. 112, 90th Cong., 1st sess.
		Rehabilitate existing breakwater, construct rubble mound west breakwater extension, construct rubble mound east breakwater, a shore revetment and dredging.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Oct 21, 1987.

TABLE 20-C

OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See annual Report For	Construction	Cost to Sep 30, 2000 Operations & Maintenance
Big (Cunningham) Creek, OH	Completed	¹	\$ 19,763 ²	-
Black River Harbor, NY	-	¹	42,401	-
Buffalo Small Boat Harbor, NY	Completed	1994	602,016 ³	
Cape Vincent Harbor, NY	Completed	1962	275,082	1,769,003
Cattaraugus Harbor, NY	Completed	2000	4,804,060 ⁴	373,578
Cattaraugus Creek, NY		²	57,410	-
Geneva-on-the Lake, OH	Completed	1990	3,145,176 ⁵	10,168
Grasse River Massena, NY	-	1891	9,000 ²	-
Kelleys Island, OH	Active	1974 ⁵	129,874	-
Little River at Cayuga Island, NY	Completed	1969	46,804 ⁶	6,580
Little Sodus Bay Harbor, NY	Completed	1999	301,934	5,603,973
Morristown Harbor, NY	Completed	1949	6,221	13,218
Niagara Remedial Works, NY ⁷	Completed	1966	6,069,395	510,819
Niagara River, NY ⁸	Completed	1964	559,457 ⁹	311,840
Ogdensburg Harbor, NY	Completed	1987	1,720,466 ¹⁰	1,436,688 ¹¹
Olcott Harbor	Completed	1999	1,754,694	705,080
Port Ontario Harbor, NY	Completed	1995	2,369,621 ¹³	44,438
Pultneyville Harbor, NY ¹⁴	-	1934	68,219	20,087
Sackets Harbor, OH	Completed	1982	25,010	28,583
Sandusky River, OH ¹⁵	-	1894	58,000 ²	557
West Harbor, OH	Completed	1999	3,303,898	1,985,927

¹ Only information available is in index to reports of Chief of Engineers.² Amount includes maintenance; not separable.³ Excludes \$593,216 contributed funds.⁴ Excludes \$2,566,529 contributed funds.⁶ Annual Report for Detroit District.⁷ Includes local interests contribution of \$25,742.⁸ Cost of operation and maintenance of this project will be settled directly by concerned power agencies. No further appropriations will be made to this project.⁹ Construction of compensating works as authorized by 1930 R&H Act was authorized by Congress in Aug 1977.¹⁰ Includes local interest contribution of \$27,563.¹¹ Includes \$271,380 for previous projects. Excludes \$57,000 contributed funds.¹² Includes \$130,512 for previous projects.¹³ Includes \$50,000 for previous projects. Excludes \$1,299,008.¹⁴ Abandonment recommended in H. Doc. 275, 64th Cong., 1st sess.¹⁵ Abandonment recommended in Ex. Doc. 16, 35th Cong., 1st sess.

BUFFALO, NY DISTRICT

Table 20-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sep 30, 2001 Operations & Maintenance
Hamlin Beach State Park, NY	Completed	1976	\$1,769,600	-
Lakeview Park, Lorain, OH	Completed	1987	1,741,125 ¹	-
Maumee Bay State Park, OH	Completed	1995	2,780,975 ²	-
Selkirk Shore State Park, Lake Ontario, NY ³	Completed	1963	58,978	\$307

¹ Federal participation was limited to one-third of first cost when project was authorized by 1954 River and Harbor Act.

Federal participation was changed from one-third to 70 percent of remaining work under Public Law 87-874.

² Does not include \$739,700 contributed funds.

³ Does not include \$199,845 contributed funds.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 20-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost To Sep 30, 2001 Operations & Maintenance
Auburn, NY, Owasco Outlet	Completed	1962	\$ 371,985 ¹	-
Batavia and Vicinity, Tonawanda Creek, NY	Completed	1957	335,385	-
Camp Perry, OH	Completed	1967 ²	275,000 ³	-
Cayuga Creek, Cheektowaga, NY ⁴	Completed	1984	1,404,500	-
Cuyahoga River Basin, OH	Active	1985	1,117,000	-
Dansville and Vicinity, Canaserga Creek, NY	Active	1985	490,300	-
Fremont, OH, Sandusky River	Completed	1976	8,589,824 ⁵	-
Ithaca, Cayuga Inlet, NY	Completed	1978	3,929,300 ⁶	-
Lackawanna, NY, Smokes Creek	Completed	1971	3,542,068 ⁷	-
Lancaster, Cayuga Creek, NY	Completed	1954	79,730	-
Marsh Creek, Geneva, NY	Completed	-	226,429	-
Montour Falls, Oswego River Basin, NY	Completed	1954	1,681,785	-
Onondaga Creek, Nedrow, NY ⁴	Completed	1964	330,231	-
Ottawa, OH	Deferred	1989	374,000	-
Owasco Inlet and Outlet, Montiville	Inactive			-
And Dry Creek, State Ditch and Crane Brook, NY ⁸	Deferred	1950	281,559	-
Point Place, Toledo, OH	Completed	1990	9,885,733 ⁹	-
Reno Beach-Howard Farms, OH	Completed	1997	5,483,192 ¹⁰	-
Scajaquada Creek, NY	Completed	1985	4,944,852	-
Syracuse Oswego River Basin, NY	Completed	1954	3,349,248	-
Warsaw, NY Oatka Creek ⁴	Completed	1969	558,317 ¹¹	-
Wellsville, NY, Genesee River	Completed	1978	3,145,303 ¹²	-

¹ Excludes cost of \$188,732 under Public Law 88-99, Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.

² Annual Report for Detroit District.

³ Includes local interest contribution of \$125,000.

⁴ Project authorized by Chief of Engineers.

⁵ Includes local interest contribution of \$6,944. Excludes cost of \$383,786 under Public Law 84-99, Flood Control and Coastal Emergencies Appropriation, for emergency restoration of levees damaged during 1973.

⁶ Includes local interest contribution of \$99,999. Excludes cost of \$104,005 under Public Law 84-99, Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.

⁷ Includes local interest contribution of \$50,000.

⁸ In-active portion of work for State Ditch has been done by local interest and work on Crane Brooks has been deferred at the request of local interests.

⁹ Excludes \$1,871,631 in contributed funds.

¹⁰ Excludes \$475,994 in contributed funds.

¹¹ Excludes cost of \$26, 807 under Public Law 84-99, Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.

¹² Includes local interest contribution of \$50,000. Excludes cost of \$374,042 under Public Law 84-99, Flood Control and Coastal Emergency Appropriation, incurred for project rehabilitation as a result of damages due to storms.

BUFFALO, NY DISTRICT

TABLE 20-G

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Black Rock Channel and Tonawanda Harbor, NY 1935 R&H Act ¹	1962	Aug-77	-	-
Black Rock Channel and Tonawanda Harbor, NY 1954 R&H Act	1962	May -81	-	-
Buffalo Harbor Drift Removal, NY	-	Dec-92	-	-
Buffalo Ship Canal, Buffalo, NY	-	Dec-92	-	-
Caledonia, Genesee River, NY 1950 FC Act	1950	Jan-90	-	-
Cape Vincent Harbor, NY 1945 R&H Act	1962	Nov-86	-	-
Chittenango Creek and Tributaries, NY 1944 FC Act	1948	Jan-90	12,464	-
Conneaut Harbor, OH R&H Act, 1910 (southerly 300 feet of shorearm)	1997	Oct-96	-	-
Conneaut Harbor, OH 1966 R&H Act, 1990 WRDA	1995	Nov-95	-	-
Crane Creek State Park, OH 1962 R&H Act	1968 ²	Nov-79	-	-
Cuyahoga River Basin 1970 FC Act	-	Apr-99	-	-
Dansville & Vicinity 1948 FC Act	-	Apr 98	-	-
Dunkirk Harbor, NY WRDA 1986	-	Dec-92	-	-
Eastlake, Chagrin River, OH 1965 FC Act	1976	Jan-90	506,344	-
Edgewater Park, OH 1954 R&H Act	-	Jan-90	-	-
Elk Creek Harbor, PA 1966 R&H Act	1978	Dec-92	101,500	-
Erie Harbor, PA 1899 R&H Act	1963	Nov-81	-	-
Erie Harbor, PA 1945 R&H Act	1963	Aug-77	-	-
Erie Harbor, PA 1960 R&H Act	1963	Aug-82	-	-
Fairhaven Beach State Park, NY 1958 R&H Act	-	Jan-90	-	-
Fairport Harbor, OH 1960 R&H Act	1995	Nov-95	67,000	-
Fairport Harbor, OH Sec. 201 1965 FC Act	1995	Nov-95	-	-
Fort Niagara State Park, NY Sec. 201 1965 FC Act	-	Jan-90	-	-
Grandview Bay Harbor, NY 1945 R&H Act	1948	Aug-77	1,524	-
Great Sodus Bay Harbor, NY 1941 R&H Act	1963	Aug-77	-	-
Hamlin Beach Harbor, NY 1968 R&H Act	1973	Jan-90	72,052	-
Hammondsport, Oswego River Basin, NY 1941 FC Act	1951	Nov-83	29,000	-
Huron Harbor, NY 1962 R&H Act ³	1963	Jan-90	-	-
Ithaca, NY – Cascadilla Creek 1941 FC Act	1950	Aug-77	8,159	-
Ithaca, NY – Fall Creek 1941 FC Act	1950	Aug-77	12,300	-
Lorain Harbor, OH – Sec. 107, R&H Act 1960 (Portion of small boat basin)	1998	Oct-96	-	-
Lorain Harbor, OH 1960 R&H Act, modified by 1965 R&H Act ⁴	1966	Jan-90	-	-
Maumee River, above Toledo, OH 1872 Act	1971 ²	Nov-77	12,000	-

¹ Extension of guide pier only: other improvements completed.

² Annual Report For Detroit District.

³ Breakwater.

⁴ Uncompleted portion.

TABLE 20-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Morristown Harbor, NY 1927 R&H Act (Portion north of northern boundary of Morris St. extended.	1949	Oct-96	-	-
Niagara River, Compensating Works, 1930 R&H Act	1964	Aug-77	-	-
Ogdensburg Harbor, NY 1935 R&H Act	1986	Nov-86	-	-
Ogdensburg Harbor, NY R&H Acts 1910, 1935 (Portion from southernmost alignment of Rte 68 Bridge upstream to northern alignment of Lake St. Bridge)	1987	Oct-96	-	-
Oswego Harbor, NY 1930 R&H Act	1963	Jan-90	-	-
Oswego Harbor, NY 1940 R&H Act ⁵	1963	May -81	-	-
Port Bay, NY 1950 R&H Act	-	Jan-90	-	-
Red Creek, NY 1966 FC Act	1975	Nov-86	361,241	-
Sackets Harbor, NY 1945 R&H Act	1948	May -81	19,010	-
Selkirk Shores State Park, OH 1954 R&H Act ³	1963	Jan-90	-	-
Sheffield Lake Community Park, Oh 1962 R&H Act	-	Aug-77	-	-
Watkins Glenn, NY 1941 FC Act	1958	Aug-77	43,182	-
White City Park, OH 1954 R&H Act	-	Jan-90	-	-

⁵ Deepening of west outer harbor, other improvements completed.

BUFFALO, NY DISTRICT

TABLE 20 - H FLOOD CONTROL AND COASTAL EMERGENCIES

ACTIVITY	FEDERAL COST	CONTRIBUTED COST
Disaster Preparedness	\$ 233,700	
Emergency Operations	15,734	
Rehabilitation	33,660	
Advance Measures	1,007,443	\$341,496

The Emergency Operations Center was activated once for flood and hurricane related disasters, without any work for FEMA and was activated once for flood and hurricane-related disasters with work for FEMA.

**TABLE 20-I FORMERLY USED REMEDIAL ACTION PROGRAM
(FUSRAP)**

<u>FUSRAP SITE</u>	<u>FY 01 COST</u>
Niagara Falls Storage Site Lewiston, NY	\$ 3,987,830
Ashland 1 Tonawanda, NY	12,636,661
Ashland 2 Tonawanda, NY	(5,113,535)
Praxair (Linde Air Projects) Tonawanda, NY	26,760,355
Seaway Industrial Park Tonawanda, NY	1,314,806
Bliss and Laughlin Steel Buffalo, NY	(27,724)
Luckey Site Luckey, OH	2,841,646
Painesville Site Painesville, OH	725,087
Fusrap Dayton, OH	14,275
Former Harshaw Chemical Co., Cleveland, OH	64,416
Scioto Laboratory Complex, Mation, OH	32,971
Dayton 1, Dayton, OH	99,247
Old Warehouse, Dayton, OH	84,250
Former Guterl Specialty Steel Corp.	39,358
Dayton Unit III, Dayton, OH	69,108
Dayton Unit IV, Oakwood, OH	68,065

TABLE 20-J GENERAL INVESTIGATIONS

COLLECTION AND STUDY OF BASIC DATA

<u>STUDY</u>	<u>GENERAL INVESTIGATIONS</u>	<u>OPERATIONS & MAINTENANCE</u>	<u>NON-FEDERAL</u>
International Water Studies	\$137,138	\$680,643	
Flood Plain Mgmt Services	81,729		\$411
Technical Services	20,819		
Quick Responses	3,044		
SS - Ohio Study	194		
SS - Village of Eden, OH	13,823		
SS - NYS Barge Canal Failure	8,050		
General Hydrologic Studies	5,161		
Willoby Hills, OH	358		

PRE-CONSTRUCTION ENGINEERING AND DESIGN

Onondaga Lake NY PL 101-596	145,853		66,147
-----------------------------	---------	--	--------

SURVEYS

FLOOD DAMAGE PREVENTION STUDIES

Cayuga Creek Watershed, NY	25,868		
Ellicott Creek, NY	1,069		
Oneida Lake, NY	941		
Sandusky River, Tiffin, OH	71,722		
Western Lake Erie Basin, OH	67,164		

SHORELINE PROTECTION STUDIES

Hamlin & Lakeside Beach, NY	16,815		
-----------------------------	--------	--	--

SPECIAL STUDIES

Onondaga Lake NY PL 101-596	330,983		
-----------------------------	---------	--	--

MISCELLANEOUS ACTIVITIES

Special Investigations	30,714		
Review of FERC Licenses	3,910		
Interagency Water Resource	9,649		
Natural Estuary Studies	4,062		
N. American Waterfowl Mgmt Plan	1,962		

COORDINATION WITH OTHER GOVERNMENT AGENCIES AND NON-FEDERAL INTERESTS

COOP with Other Water Agencies	4,064		
PAS Negotiation Funds	9,352		
PAS - NY- Union Ship Canal Struc. Analysis	14,187		
Remedial Action Plans	9,984		

TABLE 20-K WORK UNDER SPECIAL AUTHORITIES

Navigation Work Pursuant to Sec. 107, PL 86-645, as amended

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Buffalo Inner Harbor, NY	\$ 53,140	
Erie Basin Marina, Buffalo, NY	17,345	
Fairport Harbor, Lake County, OH	31,244	
Lake Ontario Commercial Truck Port, NY	34,155	
Middle Bass Island, Put-In-Bay, OH	4,461	
Put-In-Bay Harbor, Put-In-Bay, OH	8,395	
Port Bay Harbor, Huron, NY	17,604	
Rochester Harbor, Rochester, NY	78,754	\$28,412
Toussaint River, OH	54,928	
Union Ship Canal - Buffalo, NY	3,315	
Walnut Creek Access Area – Erie Co., PA	5,334	
Section 107 Coordination Account	9,892	

Navigation Work Pursuant to Sec. 111, PL 86-645 as amended of the 1968 River & Harbor Act, as amended

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Lorain Harbor, Ford City West, OH	25,550	

Shore Protection Activities Pursuant to Sec. 103 of the 1962 River and Harbor Act, as amended

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Century Park, Lorain, OH	48,678	
Lake Erie, Athol Springs, Hamburg, NY	33,084	17,819
Lake Erie, Old Lakeshore Road, Hamburg, NY	12,561	
Lake Erie, Painesville, OH	24,985	5,017
Lake Ontario, NYS Rt. 425, Wilson, NY	20,432	
Section 103 Coordination Account	4,997	
Sylvan Beach Breakwater, Oneida Lake, NY	27,219	

Flood Control Projects Pursuant to Sec. 205 of the 1954 Flood Control Act, as amended

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Buffalo Creek, Erie Co., NY	164	
Cazenovia Creek, NY	62,625	
Chagrin River, Eastlake, OH	329	
Ellicott Creek – Lancaster, NY	11,176	
Ellicott Creek, Lehn Spring, NY	20,614	
Irondequoit Creek, Penfield, NY	64,462	37,778
Scajaquada Creek - Depew, NY	13,565	
Section 205 Coordination Account	10,644	
Vermilion River, Vermilion, OH	247	

TABLE 20-K WORK UNDER SPECIAL AUTHORITIES**Flood Control Work Pursuant to Sec. 14 of the 1946 Flood Control Act, as amended**

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Blanchard River, Ottawa, OH	8,360	
Cayuga Creek – Depew, NY	50,700	54,930
Chagrin River, Gates Mills, OH	15,908	
Conneaut Creek, I-90 Bridge, Kingsville, OH	61,791	
Cuyahoga River, Bath Road, Akron, OH	57,425	
Grand River, SR 84 Bridge, Painesville, OH	19,173	
Graycliff House, Evans, NY	18,821	
Hospice of Western Reserve, OH	50,185	
Lake Erie, SR 531, North Kingsville, OH	6,664	
Lake Erie, SR 531 @ SR 534, Geneva, OH	4,510	
Lake Ontario, Albion Water, NY	13,311	
Lake Ontario, Sodus Point, Wayne Co., NY	(18,180)	
Middle Bass Island, Deist Road, OH	23,245	
Minnick Road, Tonawanda Creek, NY	10,641	
Niagara River, Tonawanda, NY	88,467	
Section 14 Coordination Account	10,753	
Sewerline, Canadaway Creek, Fredonia, NY	48,625	
Six-Mile Creek, Ithaca, NY	15,908	
Sodus Point Lighthouse, NY		33,703
Tonawanda Creek, Niagara Co, NY	10,595	
Tonawanda Creek, Riddle Road, NY	18,037	

Project Modification to Improve Environment Pursuant to Sec. 1135, PL 99-662

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Buffalo River Habitat	2,902	
Coordination Account Funds	10,752	
Preliminary Restoration Plan	8,301	
Rochester Navigation Channel, NY	512,286	
Smokes Creek, Erie County, NY	4,236	
Times Beach Environmental Improvement, NY	230,312	

Aquatic Ecosystem Restoration Pursuant to Sec. 206, PL 104-303

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Johnson Pond, Lyndonville, NY	3,152	
Oak Orchard Creek, Orleans County, NY	1,174	
Preliminary Restoration Plans	12,437	
Sec 206 Coordination Account Funds	11,643	

Wetland/Other Aquatic Habitat Creation Pursuant to Sec. 204, PL 102-560

<u>Study Identification</u>	
Section 204 Coordination Account	1,120

BUFFALO, NY DISTRICT

TABLE 20-L INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

<u>NAME OF PROJECT</u>	<u>DATE INSPECTED 2001</u>
Catherine/Shequaga Creek, Montour Falls, NY	Jun 2001
Cayuga Inlet, Ithaca, NY	Jun 2001
Conesus Lake Outlet, Livonia, NY	Jun 2001
Glen Brook, Hammondsport, NY	Jun 2001
Keshequa Creek, Nunda, NY	Jun 2001
Keuka Lake Outlet, Penn Yan, NY	Jun 2001
Lake Erie, Presque Isle Peninsula, Erie, PA	Aug 2001
Ninemile Creek, Camillus, NY	Jun 2001
Onondaga Creek, Onondaga Dam, NY	Jun 2001
Onondaga Creek, Syracuse and Nedrow, NY	Jun 2001
Owasco Inlet, Dry and Mill Creeks, Moravia, NY	Jun 2001
Owasco Inlet, Moravia, NY	Jun 2001
Owasco Outlet, Auburn, NY	Jun 2001
Owasco Outlet, Port Byron, NY	Jun 2001
Seneca Lake, Watkins Glen, NY	Jun 2001
Tonawanda Creek, Batavia, NY	Jun 2001

Inspections of completed flood control works for compliance with Federal requirements were made during the period at a cost of \$192,960. This includes updating the hydraulics and hydrology of various local flood control projects. Total cost to Sep. 30, 2001 is \$3,816,724.

DETROIT, MI, DISTRICT

The District is composed of the upper and lower peninsulas of Michigan and portions of Indiana, Wisconsin and Minnesota, which border the lakes. It includes U.S. waters of Lakes Superior, Michigan, Huron, St. Clair and western Lake Erie. Unless otherwise indicated, all depths stated in this report are referred to low water datum as follows: Lake Superior, 601.1 feet; Lake Michigan-Huron, 577.5 feet; Lake Erie, 569.2 feet; and Lake St. Clair, 572.3 feet. These elevations are in feet above the mean water level at Rimouski, Quebec -- International Great Lakes Datum, 1985 (IGLD 1985).

The IGLD 1985 is a datum or reference system used to define water levels within the Great Lakes - St. Lawrence River system. This datum was implemented in January 1992, officially replacing IGLD 1955. At the time IGLD 1955 was established, it was recognized that this datum would have to be periodically revised due to isostatic rebound. Isostatic rebound is the gradual rising or bouncing back of the earth's crust from the weight of the glaciers that covered the Great Lakes region during the last ice age.

IMPROVEMENTS

Navigation

	Page
1. Algoma Harbor, WI.....	21-2
2. Alpena Harbor, MI.....	21-3
3. Arcadia Harbor, MI.....	21-3
4. Ashland Harbor, WI.....	21-4
5. AuSable Harbor, MI.....	21-4
6. Bay Port Harbor, MI.....	21-4
7. Big Suamico River, WI.....	21-4
8. Black River (P.H.), MI.....	21-5
9. Black River Harbor (U.P.), MI.....	21-5
10. Bolles Harbor, MI.....	21-6
11. Cedar River Harbor, MI.....	21-6
12. Charlevoix Harbor, MI.....	21-7
13. Clinton River, MI.....	21-8
14. Cornucopia Harbor, WI.....	21-8
15. Detroit River, MI.....	21-8
16. Duluth-Superior Harbor, MN and WI.....	21-9
17. Fox River, WI.....	21-10
18. Frankfort Harbor, MI.....	21-11
19. Grand Haven Harbor, MI.....	21-12
20. Grand Marais Harbor, MN.....	21-13
21. Green Bay Harbor, WI.....	21-13
22. Harrisville Harbor, MI.....	21-14
23. Holland Harbor, MI.....	21-14
24. Inland Route, MI.....	21-15
25. Kenosha Harbor, WI.....	21-16
26. Kewaunee Harbor, WI.....	21-16
27. Keweenaw Waterway, MI.....	21-17
28. Lac La Belle Harbor, MI.....	21-17
29. Lake St. Clair, MI, Channels.....	21-18
30. Leland Harbor, MI.....	21-18
31. Lexington Harbor, MI.....	21-19
32. Little Lake Harbor, MI.....	21-19
33. Ludington Harbor, MI.....	21-19
34. Manistee Harbor, MI.....	21-20
35. Manistique Harbor, MI.....	21-21

Navigation (Continued)

36. Manitowoc Harbor, MI.....	21-21
37. Marquette Harbor, MI.....	21-22
38. Menominee Harbor & River, MI & WI.....	21-22
39. Milwaukee Harbor, WI.....	21-23
40. Monroe Harbor, MI.....	21-24
41. Muskegon Harbor, MI.....	21-25
42. New Buffalo Harbor, MI.....	21-26
43. Oconto Harbor, WI.....	21-26
44. Ontonagon Harbor, MI.....	21-26
45. Pentwater Harbor, MI.....	21-27
46. Point Lookout Harbor, MI.....	21-27
47. Point Austin Harbor, MI.....	21-28
48. Port Sanilac Harbor, MI.....	21-28
49. Port Washington Harbor, WI.....	21-28
50. Port Wing Harbor, WI.....	21-29
51. Portage Lake Harbor, MI.....	21-29
52. Rouge River, MI.....	21-30
53. Saginaw River, MI.....	21-30
54. St. Clair River, MI.....	21-31
55. St. Joseph Harbor, MI.....	21-31
56. Saugatuck Harbor and Kalamazoo River, MI.....	21-32
57. Saxon Harbor, WI.....	21-33
58. Sebawaing River, MI.....	21-33
59. Sheboygan Harbor, WI.....	21-33
60. South Haven Harbor, MI.....	21-34
61. Sturgeon Bay and Lake MI Ship Canal, WI.....	21-34
62. Two Rivers Harbor, WI.....	21-35
63. White Lake Harbor, MI.....	21-36
64. Reconnaissance and Condition Surveys.....	21-36
65. Other Authorized Navigation Projects.....	21-36
66. Navigation Work Under Special Authorization.....	21-36

Shore Protection

67. Authorized Beach Erosion Control Projects.....	21-37
--	-------

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

68. Emergency Shore Protection	21-38
69. Beach Erosion Work Under Special Authorization.....	21-39
70. Mitigation of Shore Damage	21-39
71. Project Modification for Improving the Quality of the Environment.....	21-40

Flood Control

72. Clinton River Spillway, MI	21-42
73. Fort Wayne Metro Area, IN	21-42
74. Saginaw River, MI.....	21-43
75. Sebawaing River, MI.....	21-45
76. Inspection of Completed Flood Control Projects.....	21-45
77. Other Authorized Flood Control Projects....	21-45
78. Flood Control Under Special Authorization.....	21-45
79. Surveillance of Northern Boundary Waters and International Water Studies	21-46

Multiple-Purpose Projects Including Power

80. St. Marys River, MI.....	21-49
------------------------------	-------

General Investigations

81. Surveys	21-52
82. Preconstruction Engineering and Design	21-52
83. Collection and Study of Basic Data.....	21-53

Tables

Table 21-A Cost & Financial Statement.....	21-54
Table 21-B Authorizing Legislation.....	21-73
Table 21-C Other Authorized Navigation Projects	21-89
Table 21-D Not Applicable	
Table 21-E Other Authorized Flood Control Projects	21-91
Table 21-F Multiple Purpose Projects, Including Power, St. Marys River, MI: Existing Project	21-91
Table 21-G Deauthorized Projects	21-92
Table 21-H Features of Existing Project	21-95
Table 21-I Fox River, WI: Locks & Dams.....	21-96
Table 21-J Reconnaissance & Condition Surv .	21-97

NAVIGATION

1. ALGOMA HARBOR, WI

Location. On west shore of Lake Michigan, about 68 miles from Green Bay via Sturgeon Bay Canal and about 115 miles northerly from Milwaukee (See NOAA Nautical Chart 14910).

Previous Project. For details see page 1199 of Annual Report for 1958.

Existing Project. Provides for (a) a north pier 1,102 feet long; (b) a south breakwater 1,530 feet long; (c) an entrance channel 14 feet deep and 200 feet wide from that depth in Lake Michigan and extending 800 feet landward; (d) a channel 14 feet deep in the Ahnapee River 80 to 175 feet wide for 1,200 feet up to the Second Street Bridge; (e) an outer basin 14 feet deep, 600 feet long and 100 to 500 feet wide. For a more detailed description see page 1200 of Annual Report for 1958.

Section 52 (c) of the Water Resources Development Act (WRDA) of 1988 deauthorized the outer harbor basin feature of the navigation project. (See Table 21-B for legislation.)

Local Cooperation. None required.

Terminal Facilities. Consists of several fishing wharves. This harbor has one of the largest charter fishing fleets on the Great Lakes.

Operations During Fiscal Year. Maintenance: Condition surveys and environmental studies performed by Government forces cost \$620.

Existing project was completed in 1909. Ahnapee River is navigable for about two miles from the mouth at a depth of four feet. Total cost of the existing project to end of FY was \$1,990,949 of which \$292,010 was for new work and \$1,698,939 for maintenance.

2. ALPENA HARBOR, MI

Location. At mouth of Thunder Bay River which empties into Thunder Bay, Lake Huron. Harbor is

DETROIT, MI, DISTRICT

100 miles southeast of Cheboygan Harbor, MI. River has its source in Montmorency and Alpena Counties, MI. (See NOAA Nautical Chart 14864.)

Previous Project. For details see page 1957 of Annual Report for 1915 and page 1548 of Annual Report for 1938.

Existing Project. Provides for a bay channel 200 feet wide and 25 feet deep from deep water in Thunder Bay to a point 300 feet lakeward of the Alpena Light; thence an entrance channel 24 feet deep, narrowing to a width of 100 feet at a point 700 feet upstream from the light; a river channel 100 feet wide, 23 feet deep to Second Avenue Bridge; thence 18.5 feet deep and 75 feet wide for 1,600 feet to upper limit of Federal project; a turning basin at upstream end of project, basin at river mouth 19 feet deep, trapezoidal in shape, with a maximum width of 700 feet including the channel width and a maximum length of 900 feet along the channel line, including removal of existing rubble breakwater; and a breakwater about 550 feet long paralleling lakeward side of new turning basin. Work authorized by the 1965 River and Harbor Act, which consists of the proposed turning basin and breakwater reconfiguration, was deauthorized by the Water Resources Development Act (WRDA) OF 1986; Public Law (PL) 99-662, November 17, 1986, 99th Congress, Title X.

Local Cooperation. Fully complied with.

Terminal Facilities. Several commercial docks along Thunder Bay River used primarily for receipt of coal and petroleum products. Also a municipal marina basin about 0.25 mile southwest of river mouth. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$17,358. The contract awarded last FY for repair of the South Breakwater, Rubblemound, was completed this FY at a cost of \$41,370. Supervision and administration cost \$22,676.

Existing project was completed in 1939. The modification of existing project at Alpena Harbor, as authorized by the 1965 River and Harbor Act, was reclassified into an inactive status May 22, 1969 based on an unfavorable benefit-cost ratio. In 1975 the modification was recommended and reviewed for deauthorization, which was withdrawn by

Congressional Resolution the same year. Subsequently, the work authorized by the 1965 Act was deauthorized by the WRDA of 1986. Project features are in excellent condition. Total cost of the existing project to end of FY was \$2,379,479, of which \$337,394 was for new work and \$2,042,085 for maintenance.

3. ARCADIA HARBOR, MI

Location. On east shore of Lake Michigan, 193 miles northeasterly from Chicago, IL, and 15 miles northerly from Manistee, MI. (See NOAA Nautical Chart 14907).

Existing Project. Provided for maintenance dredging of the existing harbor built by private interests, for a period of five years. The five years covered by this project were the calendar years 1905 to 1909, inclusive. Funds were also appropriated and maintenance was performed in calendar years 1911, 1912, 1913 and 1915, inclusive. There is at present no approved project for the improvement of this harbor. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Dock facilities are considered adequate for existing recreational traffic.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$21,019. Safety maintenance performed by hired labor cost \$5,336. A contract was awarded and completed this FY for maintenance dredging, removing 3,732 cubic yards of shoal material at a cost of \$37,392. Engineering, design, surveys, and supervision and administration cost \$32,052.

Existing project was completed in 1909. Varying depths of 5-12 feet exist in the channel at present. Maintenance of the harbor is based on providing a 9-foot depth. Piers and revetments are in good condition. Total cost of the existing project to end of FY was \$5,394,891.

4. ASHLAND HARBOR, WI

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Location. At head of Chequamegon Bay, on south shore of Lake Superior, about 65 miles east of Duluth, MN. (See NOAA Nautical Chart 14974.)

Existing Project. A west channel 20 and 21 feet deep and an east basin 25 and 27 feet deep, both all protected by an 8,000-foot breakwater. For additional details see page 1008 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. City of Ashland owns 4,150 feet of waterfront for future public needs. Wharves for handling coal, ore, limestone, logs and pulpwood are served by railroads. Facilities are considered adequate for existing commerce. Handling of ore and logs has been discontinued for the present.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$7,601.

Work authorized prior to 1960 Act was completed in 1950. Work authorized by 1960 Act was completed in November 1962. Navigation structures are in fair condition. Total cost of the existing project to end of FY was \$6,091,115, of which \$1,695,645 was for new work and \$4,395,470 was for maintenance.

5. AuSABLE HARBOR AT AuSABLE RIVER (OSCODA), MI

Location. The AuSable River and village of Oscoda, MI are on the west shore of Lake Huron, 8 miles north of AuSable Point, northeast limit of Saginaw Bay. (See NOAA Nautical Chart 14863.)

Previous Project. For details see pages 336 and 2453 of Annual Report for 1892.

Existing Project. Riprapping outer 200 feet of north pier at mouth of AuSable River, dredging an entrance channel 12 feet deep and dredging between piers and upstream to State highway bridge 10 feet deep. (See Table 21-B for authorizing legislation.)

Operations During Fiscal Year. Maintenance: Condition surveys performed by Government forces cost \$14,236. A contract was awarded and completed this FY for maintenance dredging, removing 39,073 cubic yards of shoal material at a cost of \$189,729.

Engineering, design, surveys, and supervision and administration cost \$66,793.

Existing project was completed in 1962. Piers and revetments are in good condition. Total cost of the existing project to end of FY was \$3,379,859, of which \$209,776 was for new work (includes \$16,400 contributed funds) and \$3,170,083 for maintenance.

6. BAY PORT HARBOR, MI

Location. On Wild Fowl Bay on east shore of Saginaw Bay about 10 miles south of Caseville, MI. (See NOAA Nautical Chart 14863.)

Existing Project. Provides for a channel 6 feet deep and 50 feet wide extending 5,750 feet from 6-foot contour in Saginaw Bay to intersection of private service channels to be dredged by local interests. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several small wharves used primarily by commercial fisherman. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$51,309. Engineering and design for future maintenance dredging continued at a cost of \$50,369.

Existing project was completed in 1967. Total cost of the existing project to end of FY was \$796,817, of which \$93,597 was for new work and \$703,220 for maintenance (which includes \$137,399 contributed funds).

7. BIG SUAMICO RIVER, WI

Location. A small stream which flows easterly into Green Bay, an arm of Lake Michigan. Mouth of the river is about 8 miles north of Green Bay Harbor, and about 44 miles southwesterly from Menominee Harbor, MI and WI. (See NOAA Nautical Chart 14910.)

Existing Project. An entrance channel 8 feet deep which extends from that depth in Green Bay to 1,800 feet above the river mouth, with widths of 100 feet in bay and 60 feet in river; total length of channel is

DETROIT, MI, DISTRICT

about 3,700 feet. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal facilities. Small private wharves along lower 1.5 miles of river, used by local fishing interests. Ample space is available for additional fishing wharves when required. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$51,060. Real estate, and engineering and design for future maintenance dredging continued at a cost of \$73,018.

Existing project was completed in 1938. Dredging channel was started in September 1938 and completed in November 1938. Total cost of the existing project to end of FY was \$1,495,511, of which \$20,243 was for new work and \$1,475,268 for maintenance.

8. BLACK RIVER (PORT HURON), MI

Location. This river has its source in the northern part of Sanilac County, MI, is about 60 miles long, and flows in a southeasterly direction into the St. Clair River. (See NOAA Nautical Chart 14852.)

Previous Project. For details see page 1441 of Annual Report for 1916, and page 1554 of Annual Report for 1938.

Existing Project. Provides for a channel 20 feet deep from deep water in St. Clair River to the Grand Trunk Western Railroad Bridge, 160 feet wide at the mouth, decreasing to 100 feet, about 800 feet from the mouth, thence 100 feet wide for 2,600 feet, decreasing to 75 feet for a distance of 4,800 feet; widening two bends to 100 feet, one at the foot of 12th Street, and the other below the Grand Trunk Western Railroad Bridge; for a settling basin 75 feet wide and 20 feet deep, beginning at the Grand Trunk Western Railroad Bridge in Port Huron and extending upstream a distance of about 2,300 feet; and then for a distance of 2.6 miles as a 100-foot wide river channel, 8 feet deep to the I-94 bridge where it decreases to 6 feet deep and continues to the vicinity of the Black River Drainage Canal with suitable widening where required at bends in the channel. The project modification authorized by the Act of August 30, 1935, is considered to be inactive and is excluded from the

foregoing cost for new work. The cost of this modification was last revised in 1954 and was estimated to be \$194,000 exclusive of \$194,000 to be contributed by local interests. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There are docks on both sides of Black River near its mouth, and between these docks and the upper limit of improvement there are 5 other docks varying in length from 100 to 500 feet. All docks are privately owned and are restricted to the use of the owners. The facilities are considered adequate for existing commerce. Public recreational boating facilities constructed by the State and local agencies are available, as are privately owned and operated marinas.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$31,943. Engineering and design for future maintenance dredging was initiated at a cost of \$1,952.

All work, except that authorized by Act of August 30, 1935, and the latest modification, has been completed. Total cost of the existing project to end of FY was \$2,402,030, of which \$830,165 was for new work (includes \$349,921 contributed funds) and \$1,571,865 for maintenance.

9. BLACK RIVER HARBOR (UPPER PENINSULA), MI

Location. At mouth of Black River on south shore of Lake Superior 39 miles westerly from Ontonagon, MI, and 47 miles easterly from Ashland, WI. (See NOAA Nautical Chart 14965.)

Existing Project. Two converging breakwaters, an entrance channel between breakwaters, an inner channel, and an irregular harbor basin. For additional details see page 1092 of Annual Report for 1966. Project depths are 12 feet in the approach channel and 8 feet in the river channel and basin. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. Local interests furnished easements on 0.85 acre of land.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Terminal Facilities. Wharves constructed on both sides of river. Wharf on east bank has frontage of 400 feet, on west bank, a frontage of 750 feet.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$4,302. A contract for maintenance dredging was awarded and completed this FY, removing 6,905 cubic yards of shoal material at a cost of \$70,384. Engineering, design, surveys, and supervision and administration cost \$37,787.

Project was completed in June 1958. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$1,510,792, of which \$383,350 was for new work and \$1,127,442 was for maintenance. The new work cost does not include \$30,000 contributed funds.

10. BOLLES HARBOR, MI

Location. On west shore of Lake Erie at mouth of La Plaisance Creek 7 miles southwest of Monroe, MI. (See NOAA Nautical Chart 14846.)

Existing project. Provides for an entrance channel in Lake Erie, 8 feet deep and 80 feet wide from deep water to a point opposite the outer end of existing jetty, thence widening to 100 feet at creek mouth; an access channel in La Plaisance Creek, 6 feet deep and 100 feet wide at the mouth widening to 120 feet and extending to the first bend, thence narrowing to 50 feet wide and continuing at that width to the La Plaisance Road bridge; a steel sheet pile revetment, about 200 feet long, located along Michigan State Conservation Department property on west side of channel at creek mouth. Project also provides for inclusion of existing 400-foot long steel sheet pile jetty constructed by Michigan State Waterways Commission at the mouth of La Plaisance Creek. (See Table 21-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. The Monroe Boat Club and three marinas provide facilities adequate for existing recreational boat traffic. There is also a public launching ramp and parking area at the Conservation Department fishing site at creek mouth.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost

\$23,213. A contract for maintenance dredging was awarded and completed this FY, removing 29,000 cubic yards of shoal material at a cost of \$193,123. Engineering, design, surveys, and supervision and administration cost \$46,561.

The existing project was completed in 1970. (Adequate depths exist over the project length except for the upstream 800 feet.) Facilities are in good condition. Total cost of the existing project to end of FY was \$4,383,753, of which \$472,916 was for new work (includes \$255,000 contributed funds) and \$3,910,837 for maintenance.

11. CEDAR RIVER HARBOR, MI

Location. At mouth of Cedar River on west shore of Green Bay, an arm of Northern Lake Michigan, about 68 miles north of City of Green Bay. Nearest harbors are Menominee, MI, 27 miles southwest and at Escanaba, MI, 20 miles northeast. (See NOAA Nautical Chart 14909.)

Existing Project. Two parallel entrance piers, a west pier 230 feet long and a rubblemound east pier 875 feet long with a sport fishing walkway; an entrance channel 100 feet wide and 10 feet deep from that depth in Green Bay to mouth of Cedar River about 900 feet long; and inner channel in Cedar River 1,400 feet long, 80 feet wide, and 8 feet deep upstream to about 150 below State Route 35 bridge; and a turning basin 150 feet wide near upstream end of inner bridge channel. (See Table 21-B for authorizing legislation.)

Local Cooperation. No local sponsor has been identified. The State of Michigan is awaiting completion of the limited Re-evaluation Report.

Terminal Facilities. There are no permanent docking, mooring or handling facilities.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$2,838. Engineering and design for repair of the West Pier was completed at a cost of \$39,967. A contract for this work was awarded in the amount of \$672,150. The contract was 62% complete at the end of this FY at a cost of \$420,065. Supervision and administration cost \$82,887.

DETROIT, MI, DISTRICT

Project features are in excellent condition. Total cost to end of FY was \$3,752,247 of which \$408,000 was for new work and \$3,344,247 for maintenance.

12. CHARLEVOIX HARBOR, MI

Location. On east shore of Lake Michigan, 276 miles northeasterly from Chicago, IL, and 75 miles northerly from Frankfort, MI. (See NOAA Nautical Chart 14942.)

Existing Project. A channel 24 feet deep in Lake Michigan and a river channel 23 feet deep in the lower and upper channels connecting Lake Michigan with Lake Charlevoix via Round Lake. The channels are protected where needed by piers and revetments. For additional details see page 1476 of Annual Report for 1962. (See Table 21-B for authorizing legislation.) Section 25 of the WRDA of 1988 provides authorization pertaining to the South Pier to Charlevoix Harbor. It states, "The Secretary shall take such action as may be necessary to restore recreational uses established prior to May 1, 1988, or provide comparable recreation uses at the South Pier to Charlevoix Harbor project, Charlevoix, Michigan in order to mitigate any adverse impact on recreational uses resulting from reconstruction of the South Pier..."

Local Cooperation. None required except the latest project modification is subject to the following: Provide without cost to the United States, all lands, easements, and rights-of-ways required for construction and subsequent maintenance of the modified project upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of excavated materials and any necessary retaining dikes, bulkheads, and embankments, therefor, or the cost of such retaining works; hold and save the United States free from damages due to the constructing and maintenance of the modified project, except for damages due to the fault or negligence of the United States or its contractors; provide and maintain without cost to the United States depths in berthing areas and local access channels serving the terminal commensurate with the depths provided in the related project areas; accomplish, without cost to the United States, such alterations of submarine utility crossing as are required by the modified project; establish regulations prohibiting discharge of pollutants into the waters of the harbor by users thereof which regulations shall be in accordance with applicable laws or regulations of Federal, State and local

authorities responsible for pollution prevention and control; if acquiring lands, easements and rights-of-ways for construction of the project, local interests will comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1971; PL 91-646, approved January 2, 1971; contribute all costs in excess of \$1,000,000 should the total cost of construction of the general navigation facilities exceed that amount, in accordance with provisions of Section 107 of the 1960 River and Harbor Act, as amended. The total first cost of construction (1975) is estimated at \$625,000.

Terminal Facilities. Several small landing places in Round Lake at Charlevoix for handling fish and miscellaneous commodities, a wharf for petroleum products at west end of Lake Charlevoix, and coal wharves at Advance and Boyne City. Charlevoix, Boyne City, and East Jordan provide public docks for small craft. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$43,723. Safety maintenance performed by hired labor cost \$2,613. Obstruction removal and replacement of pile clusters were performed using the U.S. Cranebarge MANITOWOC at a cost of \$118,877. Supervision and administration cost \$5,554.

Existing project was completed in 1939 except for the latest modification. Navigation structures are in good to fair condition with miscellaneous repairs scheduled in future years. Total cost of the existing project to end of FY was \$12,071,855, of which \$180,623 was for new work, \$10,761,836 for maintenance (Bank Stabilization \$46,352), and \$1,129,396 for rehabilitation.

13. CLINTON RIVER, MI

Location. Has its sources in Oakland County, MI, flows easterly about 60 miles and empties into Anchor Bay in northwestern part of Lake St. Clair. (See NOAA Nautical Chart 14850.)

Previous Project. For details see page 1958 of Annual Report for 1915, and page 1556 of Annual Report for 1938.

Existing Project. An entrance channel in Anchor Bay 8 feet deep, 300 feet wide at 8-foot depth contour in the bay, gradually decreasing to 50 feet wide at about 1,000 feet upstream from mouth of Clinton River, a length of about 4,600 feet; a channel 8 feet deep and 50 feet wide in the river about 38,700 feet long from entrance channel upstream to Mt. Clemens at Cass Avenue; closing old channel and making a cutoff at Shoemakers Bend; closing Catfish Channel; construction of revetments as needed in the river; and a harbor basin, 5 feet deep and 11 acres in area at entrance along bay channel, protected by breakwaters on north and south sides. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. River is used exclusively by recreational craft. There are numerous public and private wharves along the river below the city. They are considered adequate.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$94,616. Maintenance of confined disposal facility cost \$6,596. The contract awarded last FY for maintenance dredging was completed this FY, removing 42,850 cubic yards of shoal material at a cost of \$552,486. Surveys, and supervision and administration cost \$61,788.

Existing project was completed in 1966. Total cost of the existing project to end of FY was \$8,823,454, of which \$549,798 was for new work (includes \$289,752 contributed funds), \$4,477,476 for maintenance and \$3,796,180 for diked disposal.

14. CORNUCOPIA HARBOR, WI

Location. At mouth of Siskiwit River on south shore of Lake Superior, 49 miles east from Duluth, MN. (See NOAA Nautical Chart 14973.)

Existing Project. Provides for an entrance channel between piers; an irregular-shaped turning basin; two inner channels, and reconstruction and Federal maintenance of deflection dike and entrance piers constructed by local interests. Project depths are 10 feet between piers and 8 feet in turning basin and inner channels. For additional details see page 1010 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. About 1,000 linear feet of privately owned docking space is available.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$13,461. Emergency shoal removal was performed using the U.S. Derrickbarge SCHWARTZ at a cost of \$96,418. A contract for maintenance dredging was awarded and completed this FY, removing 10,350 cubic yards of shoal material at a cost of \$98,920. Engineering, design, surveys, and supervision and administration cost \$29,773.

Work authorized by earlier Act was completed in 1939. Work authorized in 1954 was completed in 1963. Navigation structures are in fair to good condition; repairs will be scheduled in future years. Total cost of the existing project to end of FY was \$1,919,483, of which \$462,653 was for new work and \$1,456,830 for maintenance.

15. DETROIT RIVER, MI

Location. One of the Great Lakes connecting channels, 31 miles long, flows south from Lake St. Clair to Lake Erie. (See NOAA Nautical Chart 14848.)

Previous Project. For details see page 1958 of Annual Report for 1915, and page 1541 of Annual Report for 1938.

Existing Project. Improving Detroit River main channels to provide 25.5-foot draft navigation; improving certain auxiliary and side channels; and construction of various water level and crosscurrent control structures. Details are in accompanying Table 21-H. Project depths are referred to local low water datum planes which correspond to low water datums for Lakes St. Clair and Erie, 572.3 and 569.2 feet above mean water level at Rimouski, Quebec, IGLD 1985. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. No local cooperation is required for modifications authorized by Acts of July 1946 and March 1956. The uncompleted portion of the project authorized by the 1946 and the 1956 R & H Acts, construction of the Compensating Works, with the uncompleted portion of the Trenton Channel modification approved Aug.

DETROIT, MI, DISTRICT

13, 1968, were deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

Terminal Facilities. Numerous commercial installations used for handling coal, iron ore, limestone, steel products, petroleum products, and other items such as overseas general cargo. Detail on actual port and harbor facilities is in Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, confined disposal facility monitoring, support of water control center, and miscellaneous inspections and reports performed by Government forces and contract cost \$669,380. Location and removal of obstructions was performed using the U.S. Cranebarge VELER and the U.S. Survey Vessel PAJ at a cost of \$1,935,328. Maintenance of disposal area performed by hired labor cost \$62,649. An adjustment of -\$15,727 was made in contract costs for maintenance dredging of East Outer Lower Livingstone completed last FY. Engineering, design, surveys, real estate, and supervision and administration cost \$368,787.

Latest modification of connecting channels project in the Detroit River is complete except for compensating works. Pertinent data concerning channels covered by project at end of FY are set forth in Table 21-H. Total cost of the existing project to end of FY was \$250,011,095, of which \$76,877,357 was for new work (\$75,346,669 regular funds and \$1,530,688 Public Works Funds), \$130,663,153 (includes \$361,235 Section 150 contributed funds) for maintenance and \$42,470,585 for diked disposal.

16. DULUTH-SUPERIOR HARBOR, MN AND WI

Location. At extreme western end of Lake Superior. Cities of Duluth, MN, and Superior, WI, are on north and south sides, respectively. (See NOAA Nautical Chart 14975.)

Previous Projects. See page 1246 of Annual Report for 1962.

Existing Project. Provides for rebuilding canal piers at Duluth entry, replacement or construction of piers and breakwater at Superior entry and dredging

approaches and channels within harbor, St. Louis Bay, and St. Louis River. Channels vary in depth from 32 to 28 feet in entrances, are 27 feet deep in iron-ore route channels, and are from 20 to 23 feet deep in inner channels. (See Table 21-B for authorizing legislation.)

For details of authorized channel dimensions and dimensions of structures, see pages 1246 and 1247 of Annual Report for 1962 and page 1011 of Annual Report for 1965. Portion of project for deepening Twenty-first Avenue West channel was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

The WRDA of 1986 authorized modifications to the project to deepen the western portions of North and South Channels, the entire Upper Channel and the Minnesota Channel to 27 feet LWD; widen the Cross Channel to provide a minimum turning basin of 1,500 feet; widen the bend at the Arrowhead Bascule Bridge to 600 feet; and construct an upland confined disposal facility. The current recommended plan involves only the mechanical dredging of the Cross Channel Turning Basin with disposal at the Erie Pier CDF. The remainder of the project is now unscheduled.

Local Cooperation. Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in House Document 150, 86th Congress, 1st Session and also includes, as a result of PL 99-662, construction cost sharing.

Terminal Facilities. There are 113 docks or terminals including some 54 major ones; all but one privately owned. Facilities for handling iron ore, coal, limestone, petroleum, steel and scrap iron, cement, general cargo, and grain are believed adequate for most existing commerce.

Operations During Fiscal Year. Maintenance: Operation and maintenance of the museum performed by Government forces and contract cost \$390,075. Operation and maintenance of service facilities and park pier performed by hired labor cost \$178,540. Condition surveys, environmental studies, confined disposal facility monitoring, support of water control center, and miscellaneous inspections and reports performed by Government forces and contract cost \$308,130. An adjustment of -\$56 was made in cost for development of dredged material management plans. Safety repairs performed by hired labor cost \$49,076. Duluth and Superior Entry Breakwater

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of \$548,886. Maintenance of the disposal area performed by hired labor cost \$10,507. Engineering and design for repair of the Superior Entry, South Pier (Phase II) continued at a cost of \$106,652. The contract for maintenance dredging awarded last FY was terminated for default, removing 8,203 cubic yards of shoal material at a cost of \$109,226. The contractor was assessed liquidated damages in the amount of -\$46,904. A contract for maintenance dredging was awarded this FY in the amount of \$608,230. The contract was 37% complete at the end of the FY, removing approximately 19,033 cubic yards of shoal material at a cost of \$226,000. An emergency contract for maintenance dredging was also awarded this FY in the amount of \$118,276. Dredging will begin next FY. However, the contractor was paid \$26,000 to cover his cost of bonds. Engineering, design, surveys, real estate, and supervision and administration cost \$364,344. Real estate disposal activities for Wisconsin & Left Hand Points continued at a cost of \$42,153.

Work authorized prior to 1960 Act was completed in June 1956. Under the 1960 Act, work on the outer harbor, included in House Document 150, was completed in June 1965. Work in the inner harbor, included in House Document 196, started in May 1963, was completed in November 1968 except for 21st Avenue West channel portion which was deauthorized December 31, 1989. Of the work authorized in WRDA 1986, only the Cross Channel dredging has been completed (September 1994). All other authorized improvements are unscheduled.

The United States owns 34.90 acres of land in fee in Minnesota and Wisconsin of which 2.15 acres are used for a vessel yard. Navigation structures are in poor to excellent condition; repairs are scheduled in the near future. Total cost of the existing project to end of FY was \$110,814,486, of which \$17,226,343 was for new work (includes \$331,685 contributed funds), \$80,476,484 for maintenance, \$1,556,249 for diked disposal and \$11,555,410 for rehabilitation.

17. FOX RIVER, WI

Location. Rises in Columbia County, WI, and flows about 176 miles northerly into Green Bay. Wolf River, physically a main river but by designation a tributary of Fox River, rises in central part of Fort County, WI and flows southerly. (See NOAA Nautical Chart 14916 for Lake Winnebago and lower Fox River.)

Previous Projects. See page 1368 of Annual Report for 1962.

Existing Project. Deepening and widening channel of Fox River from DePere 7 miles above mouth to confluence of Wolf River, a total length of 59 miles, to 6 feet, with 9.6 feet in rock cut below DePere lock and 7 feet in other rock cuts on lower river below Menasha lock; construction and reconstruction of 19 locks and 9 dams; a concrete retaining wall at Kaukauna; construction and maintenance of harbors having depths of 6 feet on Lake Winnebago; widening Neenah Channel to 100 feet, with a 6-foot depth for about 1 mile; and dredging, snagging, and otherwise improving Wolf River 47 miles from its mouth to New London, depth to be 4 feet.

Cost of completed portion of project is \$513, 424 for the lower river exclusive of previous projects. The uncompleted portion of the project authorized by the River and Harbor Act of 1925, was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). Section 332 of the WRDA of 1992 authorized the transfer of the navigation system to the State of WI subject to agreement; however, water regulation and dam operation will be continued by the Federal government. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Wharf and landing facilities are, in general, adequate for existing needs. (See Table 21-I on locks and dams, Fox River, WI.)

Operations During Fiscal Year. Maintenance: Condition surveys, environmental activities, safety training, miscellaneous inspections and reports, and plans for flood emergencies were performed at a cost of \$423,389. Water control studies, monitoring and regulation of water levels were performed at a cost of \$313,207. Real Estate activities cost \$48,061. The operation and maintenance of nine (9) dams and ten (10) overflow weirs and caretaker status maintenance of seventeen (17) locks and two (2) guard locks totaled \$494,371. Federal canal banks at various locations were repaired at a cost of \$219,809. Supervision and administration costs were \$128,434. Work for Phase II site assessment to support the transfer of the locks to the state of Wisconsin began at a cost of \$259,419. The FY99 basic contract to renovate the gate hoist and electrical mechanism at the remaining seven (7) dams was 99% complete at a cost

DETROIT, MI, DISTRICT

of \$2,073,000. Engineering and design during construction for this work cost \$8,979. Supervision and administration of the contract cost \$166,500. Option one of this contract to renovate machinery for the Menasha and Kaukauna Dams was awarded in the amount of \$1,759,716. Renovation will begin next FY. Supervision and administration of the contracts for lock repairs performed last FY at DePere, Little Kaukauna and Menasha, and valves and seals repairs at DePere and Menasha cost \$2,864. Engineering and design was completed this FY for repair of the Little Kaukauna Dam retaining wall at a cost of \$20,182. A contract for this work was awarded this FY in the amount of \$109,625. The contract was approximately 99% complete at the end of the FY at a cost of \$65,200. Supervision and administration of the contract cost \$12,270. Engineering and design for repair of the access road and retaining wall at Upper Appleton Dam continued at a cost of \$71,324. Engineering and design for repair of the right abutment at Upper Appleton Dam continued at a cost of \$42,549. Engineering and design continued for concrete (crack) repairs at dams in the amount of \$83,579.

Existing project is complete except for the inactive portion. Nineteen original locks and nine original dams were rebuilt. (See Table 21-I for year of completion of each). Structures and dredging in pools have increased original depths generally about 2 feet. Work remaining to complete project consists of dredging in upper portion of Wolf River, and rock removal and deepening of Neenah Channel on lower Fox River, which are no longer considered necessary. The dams tainter gates are receiving new hoist mechanisms. Existing dams repairs are underway or programmed in the near future; but many of the locks are in extremely poor condition. Only the most critical lock repairs are being made to maintain the pool for industry and hydropower users. Total cost of the existing project to end of FY was \$72,383,528, of which \$3,753,334 was for new work and \$68,630,194 for operation and maintenance. Between July 5, 1884 and June 30, 1935, funds in the amount of \$3,706,187 were expended on operation and care of works of improvement under provisions of permanent indefinite appropriation for such purposes.

18. FRANKFORT HARBOR, MI

Location. On east shore of Lake Michigan, 204 miles northeasterly from Chicago, IL, and 28 miles northerly from Manistee, MI. (See NOAA Nautical Chart 14907.)

Existing Project. Provides for constructing an exterior basin in Lake Michigan formed by two breakwaters, 450 feet apart at the outer ends, diverging at an angle of about 90 degrees, the main arm and shore connection on north breakwater are 972 and 1,000 feet long, respectively, and the main arm and shore connection of south breakwater 1,188 and 1,400 feet long, respectively; for removing 801 feet of north pier and 1,172 feet of south pier; dredging basin 20 feet deep and 800 feet wide at entrance, decreasing toward new pier heads to 600 feet wide, dredging approach and entrance channel through outer basin to a depth of 24 feet from deep water in Lake Michigan to a point 500 feet landward of opening between breakwaters, over the entire width outside the breakwaters; thence to maximum width of 500 feet inside the breakwaters and to 23 feet deep through inner portion of outer basin to outer end of north pier, over widths decreasing from 500 to 160 feet; and thence to 22 feet deep between the piers to the inner basin in Lake Betsie; dredging an 18-foot deep interior basin in Lake Betsie from within 50 feet of existing structures on the west and extending eastward about 1,550 feet to easterly boundary and from within 50 feet of existing structures on the north and extending southward 800 feet to the southerly boundary; dredging a recreational craft anchorage area 10 feet deep and 300 feet wide, extending 600 feet eastward of the east limit of the interior basin, with its north side in line with the north limit of the basin. Breakwaters and shore connections are built of concrete caissons and piling capped with concrete. Inner piers and revetments are built of stonefilled timber cribs and piling, all capped with concrete, except for 476 feet of south revetment which consists of steel sheet piling. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Two car ferry slips on south shore and several docks along north shore of Lake Betsie. The City and State provide a recreational docking facility on north side of Lake Betsie which is open to all on equal terms. There is also a marine railway capable of handling small craft. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$55,121. Safety maintenance performed by hired labor cost \$5,270. Engineering and design for repairs to the North Breakwater, Sections C and D, was initiated at a cost of \$57,122.

Existing project was completed in 1939, with exception of the latest modification that was completed in 1969. For additional details on completion of existing project see page 1474 of Annual Report for 1962. Navigation structures are in fair to good condition. Total cost of the existing project to end of FY was \$13,895,220, of which \$1,955,159 (includes \$31,709 contributed funds) was for new work, \$10,460,785 for maintenance, \$1,204,500 for diked disposal and \$274,776 for rehabilitation.

19. GRAND HAVEN HARBOR AND GRAND RIVER, MI

Location. Harbor is on east shore of Lake Michigan, 108 miles northeasterly from Chicago, IL, and 23 miles northerly from Holland, MI. River rises in Jackson County, MI, and flows 260 miles westerly into Lake Michigan. (See NOAA Nautical Chart 14933, and Geological Survey Grand Rapids quadrangle.)

Previous Project. For details see page 1949 of Annual Report for 1915, and page 1481 of Annual Report for 1938.

Existing Project. An entrance channel protected by parallel piers and revetments at mouth of Grand River, a deep draft channel in river extending to Spring Lake, a turning basin, and a shallow draft channel in river extending 14.5 miles upstream to Bass River. Project depths are 23 feet in entrance channel, 21 feet in river to turning basin, 18 feet in turning basin and channel to Spring Lake, and 8 feet in upper Grand River channel. For additional details see page 1461 of Annual Report for 1962. Dredging on northerly side of inner channel is considered inactive. Estimated cost of this portion (1954) is \$38,600. The WRDA of 1986 authorized modifications to deepen the harbor entrance and river channels to 29 and 27 feet, respectively; and provides for a new and larger turning basin. Estimated cost (Oct 90) is \$20,400,000, which includes \$11,754,000 Federal and \$8,646,000 non-Federal. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed portions of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in House Document 661, 76th Congress, 3d Session, and also

includes, as a result of PL 99-662, construction cost sharing requirements as follows:

a. Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at \$4,246,000. The estimated cash contribution of \$4,246,000 to be paid in lump sum, prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined; and

b. Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at \$2,040,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution of lands, easements, rights-of-ways, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost.

Terminal Facilities. Several wharves exist for handling coal, limestone, sand and gravel, petroleum products, fish, and miscellaneous commodities. There is also a car ferry slip which is inactive. The State and local agencies provide recreational boating facilities which are open to all on equal terms. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, confined disposal facility monitoring, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$226,878. Development of dredged material management plans continued at a cost of \$2,337. Safety maintenance performed by hired labor cost \$15,968. Engineering and design for repair of the North Pier, Section B, continued at a cost of \$31,502. Final option of the FY99 contract for maintenance dredging of the outer harbor was awarded and completed this FY, removing 27,063 cubic yards of shoal material at a cost of \$115,529. This contract was also for Section 111 beach nourishment. Engineering, design, surveys, real estate, and supervision and administration cost \$67,823. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$48,644.

Beach nourishment in conjunction with above maintenance dredging outer harbor contract cost \$33,036. Supervision and administration under Section 111 cost \$3,054.

Existing project was substantially completed in 1949. For additional details on completion of existing project see page 1463 of Annual Report for 1982. Condition of navigation structures range from good to poor with portions in a general state of deterioration and are scheduled for repairs. Total cost of the existing project to end of FY was \$39,310,074; of which \$1,458,469 was for new work, \$36,257,592 for maintenance (includes \$15,585 contributed funds), \$780,400 diked disposal and \$813,613 for rehabilitation.

20. GRAND MARAIS HARBOR, MN

Location. On north shore of Lake Superior, 106 miles northeasterly from Duluth, MN. (See NOAA Nautical chart 14967.)

Existing project. Provides breakwater piers to narrow the entrance; concrete seawalls across ledge at southeast corner of harbor; an anchorage area and a small-boat basin protected by a rubblemound breakwater. Project depths are 16 feet in anchorage area increasing to 20 feet near entrance and 8 feet in small-boat basin. For additional details see page 1014 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Two inactive pulpwood wharves and several fish wharves all privately owned. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$7,559. Repairs to the Breakwater were performed using the U.S. Derrick barge SCHWARTZ at a cost of \$142,411. Supervision and administration cost \$16,176.

Existing project is complete. Structures range from good to fair. Total costs of the existing project to end of FY was \$3,006,687, of which \$450,972 was for new work and \$2,555,715 for maintenance.

21. GREEN BAY HARBOR, WI

Location. At mouth of Fox River, at head of Green Bay, about 180 miles from Milwaukee, WI, via Sturgeon Bay Canal, and about 49 miles southwest of Menominee Harbor, MI and WI. (See NOAA Nautical Chart 14918.)

Previous Projects. See page 1366 of Annual Report for 1962.

Existing Project. See Chicago District 1979 Annual Report, Table 30-C, page 30-30.

For more detailed description of project see page 1216 of Annual Report for 1963.

Cost of completed portion of project is \$9,335,000 Federal, and non-Federal cost is \$490,000 including \$100,000 contributed funds. Local interests requested that the inactive portion of the 1962 River and Harbor Act, consisting of dredging the reach from 150 feet downstream of the Chicago & Northwestern Railway Bridge to 1,700 feet upstream of this bridge, be reactivated and the authorization modified to include deepening the adjacent turning basin and modifying the Chicago & Northwestern Railway Bridge to provide increased horizontal clearance. Estimated cost of this portion (1990) is \$6,130,000; \$4,030,000 Federal and \$2,100,000 non-Federal which includes \$1,970,000 local contribution. Section 601c of the WRDA of 1986 authorized deepening the Fox River Channel, Green Bay, WI, to 27 feet. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for existing project.

Terminal Facilities. There are 16 wharves for handling coal, petroleum products, cement, limestone, general overseas cargo and miscellaneous commodities. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces and contract cost \$423,255. The contract awarded last FY for maintenance dredging the outer harbor was completed this FY, removing 170,477 cubic yards of shoal material at a cost of \$1,015,400. A contract was awarded this FY for maintenance dredging in the amount of \$1,833,900.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Dredging will begin next FY. However, the contractor was paid \$26,000 to cover his cost of bonds. Engineering, design, surveys, and supervision and administration cost \$146,557.

Existing project is complete. The 1962 modification was started in November 1966 and completed in September 1973, except for dredging the reach from 150 feet downstream of the Chicago & Northwestern Railway Bridge to 1,700 feet upstream of this bridge. Dredging of the turning basin above C & N.W. Railway Bridge was commenced in August 1938. The turning basin was enlarged under authority of Section 5 of the Rivers and Harbors Act of March 4, 1915, in order to provide sufficient area for the large ships that use it. The work was performed as part of a maintenance dredging contract in September and October 1973. East revetment at Grassy Island was entirely removed in July 1935. Dredging Fox River and entrance channel to Tail Point Light was completed in September 1967. Total cost of the existing project to end of FY was \$63,058,725 (\$62,117,925 regular funds and \$940,800 Public Works Funds), \$9,946,395 for new work, \$45,208,019 for maintenance and \$7,904,311 for diked disposal. The new work cost does not include \$100,000 contributed funds.

22. HARRISVILLE HARBOR, MI

Location. On the west shore of Lake Huron, 20 miles north of Oscoda and 30 miles south of Alpena. (See NOAA Nautical Chart 14864.)

Existing Project. A harbor of refuge protected by breakwater structures, and dredging an entrance channel 12 feet deep and a harbor basin 10 feet deep. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Dockage facilities built by State and local agencies for recreational craft; considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys performed by Government forces cost \$14,807. An adjustment of -\$19,591 was made in contract costs for the FY00 maintenance dredging completed last FY. Supervision and administration cost \$15,673.

Navigation structures are in good condition. Total cost of the existing project to end of FY was

\$4,256,034, of which \$2,639,392 was for new work (includes \$287,454 contributed funds) and \$1,616,642 for maintenance.

23. HOLLAND HARBOR, MI

Location. On east shore of Lake Michigan 95 miles northeasterly from Chicago, IL, and 23 miles southerly from Grand Haven, MI. (See NOAA Nautical Chart 14932.)

Previous Project. For details see page 1948 of Annual Report for 1915, and page 1478 of Annual Report for 1938.

Existing Project. An outer breakwater protected approach channel in Lake Michigan, an entrance channel to Lake Macatawa protected by piers and revetments, a channel through Lake Macatawa into Black River, and a turning basin. Project depths are 23 feet in outer portion of approach channel decreasing to 21 feet at outer end of inner piers, 21 feet to upper end of project, and 18 feet in turning basin. For additional details see page 1458 of Annual Report for 1962.

The uncompleted portion of the project, widening bend of entrance channel into Lake Macatawa, was deauthorized Dec, 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed portions of project.

Terminal Facilities. Wharves are at inner end of Lake Macatawa and used for handling coal, building materials, petroleum products, and miscellaneous commodities. Two shipbuilding yards are on south shore of the lake. Holland provides a public wharf for small craft. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces and contract cost \$159,449. Safety and confined disposal facility maintenance performed by hired labor cost \$15,591. Final option of the FY99 contract for maintenance dredging the outer harbor was awarded and completed this FY, removing 20,968 cubic yards of shoal material at a cost of \$65,712. This contract was also for beach

DETROIT, MI, DISTRICT

nourishment. The contract awarded last FY for emergency dredging of the inner harbor was completed this FY, removing 14,059 cubic yards of contaminated material at a cost of \$544,352. Engineering, design, real estate, surveys, and supervision and administration cost \$91,475. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$50,066. Beach nourishment in conjunction with the above maintenance dredging outer harbor contract cost \$19,176. Supervision and administration under Section 111 cost \$952.

Existing project, with exception of widening bend in revetted entrance channel authorized by Act of September 3, 1954, was completed in 1957. For additional details on completion of existing project, see page 1460 of Annual Report for 1962. Navigation structures are in good to fair condition with repairs anticipated within the next 5 years. Total cost of the existing project to end of FY was \$32,930,299, of which \$1,392,827 was for new work (\$1,180,502 regular funds, \$176,620 for previous project and \$35,705 contributed funds), \$29,371,720 for maintenance, \$1,663,300 for diked disposal and \$502,452 for rehabilitation.

24. THE INLAND ROUTE, MI

Location. A series of interconnected lakes and streams stretching across northern tip of Lower Peninsula of Michigan, and extends from Conway near Lake Michigan to Cheboygan on Lake Huron; a distance of 35 miles. Crooked and Indian Rivers are connecting channels in the waterway. (See NOAA Nautical Chart 14886.)

Existing Project. Provides for a channel 30 feet wide and 5 feet deep, with necessary widening at bends, through Crooked and Indian Rivers, and Crooked, Burt, and Mullett Lakes, and from Conway (west end of Crooked Lake) to navigation lock at Cheboygan; in Pickerel Channel from Pickerel Lake to Crooked Lake. It also provides for suitable jetties at head of Indian River. The addition of a lock and dam was approved by the Chief of Engineers on Sep. 2, 1964, to correct a design deficiency. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. None exist for commercial cargo-handling along the Crooked and Indian Rivers. Numerous small privately owned timber piers and

wharves, some equipped with covered boat wells for serving and storing recreational craft, have been constructed. Landings maintained by hotel and resort operators are open to the public for transfer of passengers. Public docks are at Conway and Oden on Crooked Lake; the village of Indian River, Topinabee, and Mullett Lake Village on Mullett Lake; and at Cheboygan. About 30 highways dead end at water's edge, permitting public access for various marine activities. Dock facilities are considered adequate for existing traffic.

Operations During Fiscal Year. Maintenance: The navigation lock was operated and maintained by the State of Michigan at no cost to the Government. In FY 01, the lock was operated from 9:00 a.m. to 5:00 p.m. April 28-29, May 5, 6, 12, 13, 19, 20, September 17-30, October 6, 7, 13, 14. The lock was operated 8:00 a.m. to 9:00 p.m. May 26-June 30, and 8:00 a.m. to 8:00 p.m. September 4-16. The lock was operated from 8:00 a.m. to 10:00 p.m. July 1-September 3. The lock closed for the season on October 14. Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$22,599.

The existing project was completed in 1958. The lock and dam was completed in FY 1968. For additional details see page 1382 of Annual Report for 1960. Total cost of the existing project to end of FY was \$4,908,903, of which \$918,222 was for new work (includes \$148,000 contributed funds), \$3,586,381 for maintenance, and \$404,300 for diked disposal.

25. KENOSHA HARBOR, WI

Location. On west shore of Lake Michigan about 35 miles south of Milwaukee and about 54 miles north of Chicago. (See NOAA Nautical Chart 14904.)

Previous Project. See page 1390 of Annual Report for 1962.

Existing Project. For detailed description see page 1237, Annual Report for 1963. Estimated (1986) Federal cost is \$455,000 exclusive of amounts expended on previous projects, and \$195,000 non-Federal which includes \$155,000 local contribution. (See Table 21-B for authorization legislation.)

The uncompleted portion of the project authorized by the 1962 River and Harbor Act, dredging of 25-foot wide strips adjacent to the north and south piers,

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

Local Cooperation. Fully complied with.

Terminal Facilities. Three wharves used for miscellaneous foreign overseas commodities and autos, and also several fish wharves. While these facilities are considered generally adequate for existing commerce, more efficient use of existing terminals and utilization of available frontage for development of additional terminals should be made.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$11,906. Engineering and design for repair of the North Detached Breakwater continued at a cost of \$66,870.

Existing project is complete except for dredging 25-foot strips adjacent to the north and south piers which was deauthorized December 31, 1989. The north and south piers were completed in 1900 and the breakwater in 1909. Navigation structures range from fair to good condition. Detached North Breakwater needs repair. Total cost of the existing project to end of FY was \$14,225,065 (\$14,197,407 were regular funds and \$27,658 Emergency Relief Funds), of which \$988,969 was for new work, \$7,587,221 for maintenance, \$4,378,600 for diked disposal and \$1,270,275 for rehabilitation. The new work cost does not include \$3,000 contributed funds.

26. KEWAUNEE HARBOR, WI

Location. On west shore of Lake Michigan, about 105 miles north of Milwaukee, WI, and about 78 miles from Green Bay, via Sturgeon Bay Canal. Harbor is at mouth of Kewaunee River. (See NOAA Nautical Chart 14908.)

Previous Projects. See page 1375 of Annual Report for 1962.

Existing Project. See Chicago District 1979 Annual Report, Table 30-C, page 30-31.

Costs of completed project are \$603,021 Federal, and \$9,000 non-Federal, exclusive of amount expended on previous projects. Uncompleted portion (estimated \$200,000, July 1965) of 1935 River and Harbor Act is considered inactive, and excluded from present cost estimate. The portion authorized by the

1960 River and Harbor Act was deauthorized in 1977. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Two car-ferry slips, a petroleum tank farm, a Corps of Engineers project office, and several fish wharves. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$50,496. Safety maintenance, and supervision and administration cost \$18,343. Materials purchased and stockpiled for future repairs cost \$24,525.

Active portion of existing project is complete. The north pier was completed in 1897 and the remaining portion is in generally good condition. Rehabilitation of the south pier was completed in June 1967. Construction of north breakwater and shore connection, except for a gap of 150 feet about 830 feet from shoreward end, and removal of outer 706.5 linear feet of north pier was commenced in September 1935 and completed in June 1937. Removed 500 linear feet of north pier in April/May 1963 and widened and deepened the adjacent channel in 1965. Outer end of the north pier was struck and severely damaged by car ferry vessel in October 1973 and a 24-foot section at outlet end was subsequently removed, thus reducing the structure to a length of 626 feet. Dredging entrance channel in interior basin to the existing project depth was commenced in April and completed in October 1938. Kewaunee River is navigable to about 6.5 miles above mouth for craft drawing not more than 4 feet. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was \$12,923,163, of which \$758,333 was for new work (\$338,333 regular and \$420,000 Emergency Relief Funds) \$8,586,069 for maintenance, \$2,961,461 for diked disposal and \$617,300 for rehabilitation.

27. KEWEENAW WATERWAY, MI

Location. In Lake Superior across Keweenaw Peninsula in upper peninsula of Michigan. The west entrance is 169 miles east of Duluth, MN. (See NOAA Nautical Chart 14972.)

Existing Project. A navigable channel, minimum width 300 feet, 25 miles long, partially natural and

DETROIT, MI, DISTRICT

partially artificial, across Keweenaw Peninsula via Portage Lake. For details see page 1121 of Annual Report for 1963. (See Table 21-B for authorizing legislation.)

The uncompleted portion of the project for navigation at Keweenaw Waterway, Houghton County, MI, authorized by the River and Harbor Act of Aug. 30, 1935, PL 409, 73rd Congress, which consists of extending the lower entrance breakwater by 2,000 feet, including the necessary alteration or replacement of structures due to channel deepening, was deauthorized by the WRDA of 1986; PL 99-662, Nov. 17, 1986, 99th Congress, Title X.

Local Cooperation. None required.

Terminal Facilities. Six coal docks, a petroleum dock, and several general merchandise and miscellaneous wharves, all privately owned. Facilities are considered adequate for existing commerce. Also present is a government constructed recreational area with facilities to include a picnic area and small boat landing range.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental activities, and miscellaneous inspections and reports performed by Government forces cost \$30,627. Breakwater repairs performed using the U.S. Derrickbarge SCHWARTZ cost \$233,411. Real estate, and supervision and administration cost \$28,089.

Active portion of the project is complete. Lower entry piers are in fair condition. It is anticipated repairs will be required within the next ten years. Upper entry breakwaters are in good condition, but require annual stone maintenance due to severity of the wave climate. Total cost of the existing project to end of FY was \$35,542,946, of which \$5,974,141 was for new work, \$28,045,305 for maintenance and \$1,523,500 for diked disposal.

28. LAC LA BELLE HARBOR, MI

Location. On the south shore of Lake Superior on the eastern shore of Keweenaw Peninsula, 41 miles northeasterly from Portage entry to Keweenaw Waterway. Lack La Belle, Bete Grise Bay, and Mendota Ship Canal combine to form the harbor. (See NOAA Nautical Chart 14964.)

Existing Project. Provides for construction of two parallel piers at the entrance having lengths of 584 and 682 feet for north and south piers, respectively; for an entrance channel between the piers 50 feet wide and 12 feet deep, about 820 feet long with a flared approach; and for an inner canal 50 feet wide and 10 feet deep, about 730 feet long. For additional details see page 1039, Annual Report for 1964. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several small, privately owned wharves are available in the harbor for use of small craft engaged in fishing and recreational activities. A State owned dock for small craft is located at the northwest corner of Lac La Belle Bay.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$14,166.

The existing project was completed in 1960. Controlling depths are about 11 feet in the approach channel and 10 feet in the inner channel. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was \$1,072,219, of which \$269,270 was for new work and \$802,949 for maintenance. The new work does not include \$38,190 contributed funds.

29. LAKE ST. CLAIR, MI, CHANNELS IN

Location. Lake St. Clair, a section of Great Lakes connecting channels, is an expansive shallow basin having a vessel track length of about 15 miles from mouth of St. Clair River to head of Detroit River. (See NOAA Nautical Chart 14850.)

Previous Project. For details see page 2882, Annual Report for 1896; pages 1957-58, Annual Report for 1915; and page 1539, Annual Report for 1938.

Existing Project. An improved channel through Lake St. Clair 800 feet wide, 27.5 feet deep, and about 14.5 miles long; extending from mouth of Southeast Bend cutoff channel at lower end of St. Clair River to head of Detroit River Channel. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. None.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, support of the water control center, and miscellaneous inspections and reports performed by Government forces cost \$47,967. Maintenance of the confined disposal facility performed by hired labor and contract cost \$6,175. Maintenance dredging for this FY was cancelled due to a lack of shoaling. Engineering and design for this work was completed at a cost of \$5,974.

Total cost of the existing project to end of FY was \$21,823,913, of which \$7,675,357 was for new work (\$6,666,762 regular funds and \$1,008,595 Public Works Funds), \$9,028,756 for maintenance, and \$5,119,800 for diked disposal.

30. LELAND HARBOR, MI

Location. A light-draft harbor on eastern shore of Lake Michigan at mouth of Carp River, about 40 miles north of Frankfort, MI, and 40 miles southwest of Charlevoix, MI. (See NOAA Nautical Chart 14912.)

Existing Project. Provides for a harbor of refuge consisting of a breakwater about 1,200 feet long, a protected anchorage and maneuver area about 3 acres in extent and 10 feet deep, a 12-foot deep flared approach channel decreasing in width to 90 feet, an existing south pier 440 feet long, a 35-foot long cellular extension to south pier, an entrance channel 6 feet deep and 40 feet wide extending to mouth of Carp River, and for elimination of existing north pier. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Privately owned wharves on each side of river below the dam which is 400 feet above the river mouth. These wharves serve the local fishing interests and recreational craft. Public facilities are operated by the State and local agencies. All available dockage space is utilized.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$20,449. Safety maintenance performed by hired labor cost \$3,675. A contract was awarded

and completed this FY for maintenance dredging, removing 16,268 cubic yards of shoal material at a cost of \$80,072. Engineering, design, surveys, and supervision and administration cost \$47,314.

The existing project was completed in 1932 except for the 1962 authorization, which was completed in 1967. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$4,964,150, of which \$1,027,089 was for new work (includes \$354,139 contributed funds), \$3,866,383 for maintenance and \$70,678 for rehabilitation.

31. LEXINGTON HARBOR, MI

Location. On southwest shore of Lake Huron, 20 miles north of Port Huron, MI. (See NOAA Nautical Chart 14862.)

Existing Project. Provides for two offshore breakwaters opening to the southeast and totaling about 2,400 feet long with provisions for recreational fishing on the main breakwater; an anchorage and maneuver area of about 5 acres, 8 feet deep; and a flared approach channel 10 feet deep, decreasing to 160 feet in width through the breakwaters. Project also provides for recreational fishing facilities. Estimated (1979) Federal cost of new work is \$1,647,306 excluding \$1,088,888 to be contributed by local interests. (See Table 21-B for authorizing legislation.)

Local Cooperation. Assurances of local cooperation were furnished by the Michigan Department of Natural Resources to the Secretary of the Army. The cash contribution was \$1,088,888.

Terminal Facilities. An existing public fishing pier of open pile construction is not adequate for existing and prospective commerce. Complete boating facilities are planned by State and local agencies in connection with the harbor construction.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$1,915. Miscellaneous inspections and reports in connection with Section 111 of P.L. 90-483 were performed by government forces at a cost of \$6,995.

The existing project was completed during FY 1977. Navigation structures are in fair condition. Total cost of the existing project to end of FY was \$6,276,230, of which \$3,107,192 (includes \$1,088,888 contributed

DETROIT, MI, DISTRICT

funds) was for new work and \$3,169,038 for maintenance.

32. LITTLE LAKE HARBOR, MI

Location. On south shore of Lake Superior 21 miles west of Whitefish Point and 30 miles east of Grand Marais, MI. (See NOAA Nautical Chart 14962.)

Existing Project. Provides for a small-craft harbor of refuge by dredging an entrance channel 12 feet deep from Lake Superior into Little Lake, suitably protected by breakwaters and revetments. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Only terminal facility at project consists of a public dock built by the State of Michigan for light-draft craft.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$19,524. A contract for maintenance dredging was awarded and completed this FY, removing 42,196.8 cubic yards of shoal material at a cost of \$343,923. Engineering, design, surveys, and supervision and administration cost \$71,294.

This project is considered complete; however, because of shifting sand, the harbor entrance shoals rapidly with the result that full project depth is not usually available. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$5,725,232, of which \$600,478 was for new work (includes \$57,670 contributed funds) and \$5,124,754 for maintenance.

33. LUDINGTON HARBOR, MI

Location. On east shore of Lake Michigan, 156 miles northeasterly from Chicago, IL, and 67 miles northerly from Grand Haven, MI. (See NOAA Nautical Chart 14937.)

Previous Project. For details see page 1951 of Annual Report for 1915, page 1491 of Annual Report for 1938, and page 1307 of Annual Report for 1963.

Existing Project. Provides for an exterior basin in Lake Michigan protected by north and south

breakwaters, north breakwater is 1,800 feet long and south breakwater 1,700 feet long, 550 feet apart at outer ends, diverging at an angle of 90 degrees, with shore connections, 1,103 and 2,004 feet long, respectively; for dredging exterior basin to 18 feet deep with a maximum width of 1,500 feet; for a channel with a depth of 29 feet from deep water in Lake Michigan decreasing to 27 feet at the west end of the north pier, over a maximum width of 600 feet; thence a channel with a depth of 27 feet, over a minimum width of 230 feet with necessary widening at Pere Marquette Lake; and for inner piers and revetments, 1,649 feet long on north and sufficiently long on the south for turn at Pere Marquette Lake. The estimated (1977) Federal cost for new work is \$8,250,000. Estimated total cost for local interests is \$147,000. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. In addition to main terminal of Chesapeake & Ohio Railway Company consisting of three car ferry slips, a wharf, and warehouses, there are several wharves which handle coal, limestone, and miscellaneous commodities. Facilities adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$152,628. Safety maintenance performed by hired labor cost \$2,871. An adjustment of \$100 was made in engineering and design costs for the FY99 North Breakwater, Section B, repairs contract completed last FY. A contract for maintenance dredging was awarded this FY in the amount of \$315,590. Dredging will begin next FY. However, the contractor was paid \$26,000 to cover his cost of bonds. Engineering, design, surveys, and supervision and administration cost \$52,937. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$50,465.

Existing project was completed in 1918. For additional details on completion of existing project see page 1469 of Annual Report for 1962. Structures are in good condition except for the south breakwater head that needs repair. Total cost of the existing project to end of FY was \$30,776,908, of which \$8,532,202 was for new work, \$21,886,793 for maintenance, and \$357,913 for rehabilitation. The maintenance cost does not include \$136,286 contributed funds.

34. MANISTEE HARBOR, MI

Location. On east shore of Lake Michigan, 179 miles northeasterly from Chicago, IL, and 26 miles northerly from Ludington, MI. (See NOAA Nautical Chart 14938.)

Previous Project. For details see page 1952 of Annual Report for 1915, and page 1493 of Annual Report for 1938.

Existing Project. An entrance channel in Lake Michigan protected by a breakwater, piers, and revetment; a channel in Manistee River to Manistee Lake; and Federal participation in cost of replacing Maple Street Bridge. Project depths are 25 feet in entrance channel and 23 feet in river channel. For additional details see page 1470 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Installations are on both sides of river and on Manistee Lake. Commerce handled includes coal, sand, salt, and general cargo. In addition, there is a Government wharf and a State and City owned recreational craft pier which is open to the public. These facilities satisfy current commerce requirements.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$77,645. Safety maintenance performed by hired labor cost \$4,956. Repair of the North Pier, Sections A-1, B & C, was performed using the U.S. Cranebarge MANITOWOC at a cost of \$129,238. A contract for maintenance dredging was awarded and completed this FY, removing 75,765 cubic yards of shoal material at a cost of \$277,328. Engineering, design, surveys, real estate, and supervision and administration cost \$102,919.

Existing project was completed in August 1967. For additional details on completion of existing project see page 1470 of Annual Report for 1962. Navigation structures range from generally fair to good condition. Total cost for existing project to end of FY was \$16,691,871, of which \$2,696,522 was for new work, \$12,621,185 for maintenance, and \$1,374,164 for rehabilitation.

35. MANISTIQUE HARBOR, MI

Location. On the north shore of Lake Michigan, 135 miles northeasterly from Green Bay Harbor, WI, and 220 miles northerly from Milwaukee, WI. (See NOAA Nautical Chart 14908.)

Previous Projects. For details see page 1933 of Annual Report for 1915, and page 1422 of Annual Report for 1938.

Existing Project. A breakwater protected entrance channel in Lake Michigan, a channel in Manistique River, and a pier at river mouth. Project depths are 19 feet in outer portion of entrance channel, 18 feet in inner portion of entrance channel, and 18 feet in river channel. For additional details see page 1452 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. A car ferry slip, two coal and building material wharves, two fishing wharves, and numerous lumberyard slips. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$11,189. The FY99 contract for repair of the East and West Breakwater, Sections F, E, C & D, was completed this FY at a cost of \$2,087,561. Engineering and design during construction cost \$8,812. Supervision and administration of the contract cost \$113,469.

Navigation structures are in generally excellent condition. Total cost of the existing project to end of FY was \$8,609,683, of which \$1,299,355 was for new work, \$6,993,995 for maintenance and \$316,333 for rehabilitation.

36. MANITOWOC HARBOR, WI

Location. On west shore of Lake Michigan about 79 miles north of Milwaukee, WI, and about 106 miles from Green Bay Canal. (See NOAA Nautical Chart 14922.)

Previous Projects. See page 1379 of Annual Report for 1962.

DETROIT, MI, DISTRICT

Existing Project. The total estimated (Oct. 1981) project cost is \$3,080,000; the Federal cost is \$1,085,000 and non-Federal cost is \$1,995,000, which is a cash contribution. See Chicago District Annual Report for 1979, Table 30-C.

For detailed description see page 1228 of Annual Report for 1963. Estimated costs (1970) of new work for 1968 modification are \$81,000 Federal and \$30,000 non-Federal which includes a cash contribution of \$18,000. Work on the 1968 modification was postponed until 1982. The portion authorized by the 1962 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Construction of a small boat harbor within the existing harbor was authorized by the Chief of Engineers, June 26, 1979, and 720-foot channel extension affirmed in July 1982, under authority of Section 107, 1960 River and Harbor Act, as amended.

Local Cooperation. Fully complied with for completed modifications. For 1968 modification local interests must make an annual cash contribution equivalent to 50% of the annual costs associated with construction and maintenance of the channel extension until such time that a second user utilizes the channel extension. Such a contribution is presently estimated at \$9,206; additional assurances require that the sponsor provide without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of dredged materials, and the necessary retaining dikes, bulkheads and embankments therefor or the costs of such retaining works; hold and save the United States free from damages due to the construction works and subsequent use, operation, and maintenance of the project, not including damages due to the fault or negligence of the United States or its contractors; provide and maintain without cost to the United States adequate berthing areas at the docks adjacent to the improvement; accomplish at no cost to the United States all relocations and alterations of utilities necessary for the project; assume full responsibility for all project first costs in excess of the Federal cost limitation of \$2,000,000; and comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Terminal Facilities. Three car-ferry slips, a grain elevator, one shipbuilding yard, and three other wharves used for handling coal, building materials, cement, and miscellaneous commodities. While these facilities are considered adequate for existing commerce, it is believed the city should provide a suitable wharf with warehouse and railway connection open to the general public.

Operations During fiscal year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$89,615. Safety maintenance performed by hired labor cost \$7,650. A contract for maintenance dredging was awarded this FY in the amount of \$296,400. Dredging will begin next FY. Engineering, design, surveys, and supervision and administration cost \$81,861.

Existing project is complete except for the 1962 and 1968 modifications. The 1962 modification was deauthorized December 31, 1990. Work on the 1968 modification was essentially completed in FY 83. The Federal modification, adopted July 15, 1985, included the expansion of the new entrance channel to the Section 107 project and extension of the rubblemound breakwater. Dredging a channel through the outer basin to existing project depth and removal of a portion of old north stub pier at the river entrance were completed in December 1937. Dredging river channel was completed in July 1942. South Breakwater, Section E, is in fair condition and is programmed for repair. Total cost of the existing project to end of FY was \$16,482,765, of which \$3,960,044 was for new work (includes \$1,911,130 contributed funds), \$9,440,965 for maintenance (includes \$66,735 contributed funds), and \$3,081,756 for diked disposal.

37. MARQUETTE HARBOR, MI

Location. In Marquette Bay on south shore of Lake Superior, 160 miles west of Sault Ste. Marie, MI, and 265 miles east from Duluth, MN. (See NOAA Nautical Chart 14970.)

Existing Project. Provides for a breakwater, and a harbor basin 26.5 feet deep, giving a protected area of 350 acres. Project was modified in 1960 to provide a 27-foot depth in harbor area. (See Table 21-B for authorizing legislation.)

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Local Cooperation. None required for earlier authorizations. Fully complied with for the 1960 Act.

Terminal Facilities. One ore dock, unused at present; two coal docks; one petroleum dock; and three other unused docks. There are also several small fish wharves without railroad connections. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$1,444.

Navigation structures are in fair to good condition. Total cost of the existing project to end of FY was \$5,114,982, of which \$1,282,893 was for new work, \$3,366,332 for maintenance and \$465,757 for rehabilitation.

38. MENOMINEE HARBOR AND RIVER, MI AND WI

Location. On Lake Michigan at the mouth of Menominee River on the western shore of Green Bay, 16 miles northwest of the mouth of Sturgeon Bay, and 49 miles northeast of Green Bay Harbor, about 155 miles from Milwaukee via Sturgeon Bay Canal. The river forms the boundary between the commercial harbors at Marinette, WI, and Menominee, MI. (See NOAA Nautical Chart 14917.)

Previous Projects. See page 1361 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-26.

For detailed description see page 1214, Annual Report for 1963. The portion authorized by 1960 River and Harbor Act is inactive and estimated (1964) at \$442,000 Federal, and \$105,000 non-Federal. Costs of completed new work, exclusive of inactive work and amount expended on previous projects, are \$221,053 Federal and \$40,762 non-Federal, which includes a cash contribution of \$36,762. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed work.

Terminal Facilities. There are 9 wharves for handling coal, limestone, pulp and miscellaneous commodities. City of Marinette, WI, provided a

public wharf. Facilities are considered fairly adequate for existing commerce, except that there is need for a public wharf owned by city of Menominee, with warehouse and railway connection.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$21,924. Repairs to the South Pier, Sections D & E, were performed using the U.S. Cranebarge MANITOWOC at a cost of \$38,012. Supervision and administration cost \$19,115.

The project in effect prior to the modification of March 2, 1945, was completed in 1938. No additional work was necessary under the modification of March 2, 1945, to provide a depth of 12 feet in the extension of the channel to the vicinity of the Marinette Yacht Club, as project depth or more was available. The entrance piers were completed in 1884, were rehabilitated (1954-1964) and are in excellent condition. Dredging of the channel below the Marinette municipal wharf, together with enlarging the turning basin to existing project depth, was commenced in May 1938. Modification of the project authorized by the 1960 River and Harbor Act is inactive. Construction for the 1967 modifications was started August 17, 1968, and completed in October 1968. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$5,879,785, of which \$570,238 was for new work (includes \$36,762 contributed funds), \$3,364,035 for maintenance, \$593,660 for diked disposal and \$1,351,852 for rehabilitation.

39. MILWAUKEE HARBOR, WI

Location. On west shore of Lake Michigan about 85 miles north of Chicago, IL, and about 83 miles west of Grand Haven, MI. (See NOAA Nautical Chart 14924.)

Previous Projects. See page 1385 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-26. For detailed description see page 1232 of Annual Report for 1963.

Completed new work costs are \$6,934,804 Federal and \$478,000 non-Federal, exclusive of amount expended on previous projects. The uncompleted portion authorized by the 1935 River and Harbor Act

DETROIT, MI, DISTRICT

was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). Uncompleted portion of 1945 River and Harbor Act was deauthorized in 1977. (See Table 21-B for authorizing legislation.)

Local Cooperation. Complied with for Acts of March 2, 1945, October 23, 1962, and July 14, 1960, except deauthorized portion of 1945 Act. Act of Aug. 30, 1935, provided that original dredging of outer harbor area be done by city of Milwaukee and city of Milwaukee be reimbursed at actual cost but not to exceed 10 cents per cubic yard, place measurement, for original dredging done subsequent to authorization of work by Congress. Agreement covering dredging was executed by Secretary of War, Feb. 23, 1934, after this work was originally authorized as part of public works program. City was reimbursed for 10 percent of dredging.

Terminal Facilities. There are 4 car-ferry slips, and 57 other wharves, private and municipal, used for handling coal, grain, building materials, cement, petroleum products, and miscellaneous commodities. As facilities in inner harbor were inadequate for existing commerce, Milwaukee Harbor Commission has constructed nine docks in the outer harbor for handling general cargo.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces and contract cost \$268,627. Development of dredged material management plans continued at a cost of \$24,115. Moved stone to the Kewaunee Area Office for future repairs using the U.S. Derrickbarge SCHWARTZ at a cost of \$31,313. A contract for maintenance dredging was awarded this FY in the amount of \$58,000. Dredging will begin next FY. However, the contractor was paid \$23,000 to cover his cost of bonds. Engineering, design, surveys, and supervision and administration cost \$48,004.

Existing project is complete except for inactive portions. The 1962 modification was completed in July 1967. North breakwater and shore connection, 9,954 feet long, was completed in August 1925. North pier was completed in 1905 and construction of south pier was completed in November 1910. Construction of south breakwater and shore connection was completed in October 1929. Before modification of August 30, 1935, City of Milwaukee also dredged most of the area in the outer harbor south

of inner entrance piers and lakeward of pierhead line to more than 21 feet below datum without cost to the United States. City of Milwaukee also dredged a portion of the area of the outer harbor north of inner entrance piers to provide an approach channel to the passenger and auto pier opposite East Claybourn Street. Work on the 1945 modification was completed in August 1957, except for the uncompleted portion, which consists of dredging the Milwaukee River from Buffalo Street to upper limit of the project at Humboldt Avenue. The uncompleted portion of the project authorized by the 1945 Rivers and Harbors Act was deauthorized in 1977. Navigation structures range from fair to excellent condition. Total cost of the existing project to end of FY was \$75,435,446, of which \$8,231,024 was for new work, \$48,107,937 for maintenance (includes \$322,471 contributed funds), \$6,380,925 for diked disposal and \$12,715,560 for rehabilitation.

40. MONROE HARBOR, MI

Location. On lower reach of River Raisin, which empties into Lake Erie and is 36 miles south of Detroit, MI. (See NOAA Nautical Chart 14830.)

Existing Project. Provides for a channel in Lake Erie and River Raisin to city of Monroe, for a turning basin, and for riprapping protecting dikes at river mouth. Project depths are 21 feet to turning basin, 18 feet in turning basin, and 9 feet to upstream end of project. For additional details see page 1490 of Annual Report for 1962. Project feature for riprapping protecting dikes is considered inactive. Estimated cost of this feature (1954) is \$90,000. (See Table 21-B for authorizing legislation.)

The WRDA of 1986 authorized modifications to deepen the River Raisin portion of the existing 200-foot navigation channel from 21 to 27 feet between existing turning basin and the river's mouth; deepen the lake channel from 21 to 28 feet, and widen the channel from 200 to 500 feet, for a distance of approximately 47,000 feet from the river's mouth to the Maumee Bay Entrance Channel; dredge a new turning basin 24 feet deep, with a diameter of at least 1,600 feet, at the river's mouth; and construct a 190 acre confined disposal area in Plum Creek Bay behind which would enable the creation of a 700 acre marsh. Estimated total cost (Oct. 88) is \$150,200,000; \$59,000,000 Federal and \$91,200,000 non-Federal, which includes a cash contribution of \$19,650,000.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Local Cooperation. Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in the Rivers and Harbors Committee Document 22, 71st Congress, 1st Session; R & H Comm. Doc. 12, 72d Congress, 1st Session, and 45, 75th Congress, 1st Session, and also includes, as a result of PL 99-662, construction cost sharing as follows:

a. Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at \$19,650,000. The estimated cash contribution of \$19,650,000 to be paid in lump sum prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined;

b. Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at \$7,860,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution for lands, easements, rights-of-way, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost; and

c. The confined dike area construction is a non-Federal responsibility and is estimated to cost \$70,156,000.

Terminal Facilities. Several privately owned docks and a municipal terminal. Port of Monroe Authority built a steel and concrete wharf on southeast side of turning basin for commercial use. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$59,539. Maintenance of the confined disposal facility performed by hired labor cost \$6,729. A contract for maintenance dredging was awarded and completed this FY, removing 64,798 cubic yards of shoal

material at a cost of \$341,394. Engineering, design, surveys, and supervision and administration cost \$123,959.

Total cost of the existing project to end of FY was \$61,948,784, of which \$987,340 was for new work (includes \$300,000 contributed by the Port Commission of Monroe) \$22,271,862 for maintenance (includes \$166,667 contributed funds: \$125,000 by Consolidated Paper Company and \$41,667 by River Raisin Company) and \$38,689,582 for diked disposal (includes \$83,182 contributed funds).

41. MUSKEGON HARBOR, MI

Location. On east shore of Lake Michigan, 114 miles northeasterly from Chicago, IL, and 80 miles easterly from Milwaukee, WI. (See NOAA Nautical chart 19434.)

Previous Project. For details see page 1950 of Annual Report for 1915; page 1399, Annual Report for 1924; and page 1484, Annual Report for 1938.

Existing Project. A breakwater protected outer basin in Lake Michigan and an entrance channel from Lake Michigan to Muskegon Lake protected by piers and revetments. Project depths vary from 29 feet in the lakeward portion of the outer basin to 27 feet in the channel between the inner piers to Muskegon Lake. For additional details see page 1303 of Annual Report for 1963. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several privately owned wharves primarily for commercial use. Details on actual port and harbor facilities are in Port Series, No. 48 (revised 1981) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$26,804.

Existing project, including latest project modification, was completed in 1965. For additional details on completion of existing project see page 1465 of Annual Report for 1962. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$31,013,185, of

DETROIT, MI, DISTRICT

which \$3,017,110 was for new work, \$14,171,775 for maintenance, and \$13,824,300 for rehabilitation.

42. NEW BUFFALO HARBOR, MI

Location. At mouth of Galien River on southeast shore of Lake Michigan in Berrien County, about 45 miles easterly from Chicago, IL. (See NOAA Nautical Chart 14905.)

Existing Project. Provides for an entrance channel 10 feet deep by 80 feet wide and 850 feet long, to mouth of Galien River; new north and south breakwaters 1,305 and 740 feet long, respectively, and deepening inner channel to Galien River to 8 feet and 80 feet wide and 1,250 feet long. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. One village owned boat ramp and three privately operated marinas, and a private boat club facility.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$44,413. Safety repairs performed by hired labor cost \$1,899. A contract was awarded and completed this FY for maintenance dredging, removing 4,157 cubic yards of shoal material at a cost of \$45,532. This contract was issued as a modification under the FY99 dredging contract for St. Joseph Harbor. Engineering, design, surveys, and supervision and administration cost \$44,112.

Existing project is complete. The North and South Breakwaters are in fair condition. It is anticipated repairs will be required within the next five years. Total cost of the existing project to end of FY was \$8,047,144, of which \$2,472,183 was for new work (includes \$1,186,467 contributed funds), \$5,393,461 for maintenance, and \$181,500 for diked disposal.

43. OCONTO HARBOR, WI

Location. On the west shore of Green Bay, about 31 miles northeasterly from Green Bay Harbor, WI and about 25 miles southwesterly from Menominee Harbor, MI and WI, at mouth of Oconto River. (See NOAA Nautical Chart 14910.)

Previous Project. For details see page 1187 of Annual Report for 1958.

Existing Project. See Chicago District Annual Report 1979, Table 30-C, page 30-27. For detailed description see page 1187, Annual Report for 1958. (See Table 31-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Two municipally owned wharves of 400 and 100 foot frontage, respectively, for miscellaneous freight, open to general public use. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$16,232. Limited dredged material management plan study continued at a cost of \$67,471.

Navigation structures are in good condition. Total cost of the existing project to end of FY was \$2,570,376, of which \$130,754 was for new work and \$2,439,622 for maintenance.

44. ONTONAGON HARBOR, MI

Location. About 140 miles east of Duluth, MN, on south shore of Lake Superior, at mouth of Ontonagon River; provides the only refuge for small craft between the Keweenaw Waterway upper entrance and Black River Harbor. (See NOAA Nautical Chart 14965.)

Previous Project. For details see page 1931 of Annual Report for 1915, and page 1406 of Annual Report for 1938.

Existing Project. Provides for approach channel 16 feet deep, a channel between piers with 17- and 15-foot depths, an inner basin 12 feet deep, and maintenance of channels, basin, and entrance piers. Completed project cost \$19,619. See page 1100 of Annual Report for 1966 for details. A modification authorized by 1962 River and Harbor Act provides for increasing depths of channels, construction of an inner basin and a sedimentation basin. (See Table 21-B for authorized legislation.)

The turning basin feature of the project for navigation at Ontonagon Harbor, Ontonagon County, MI, authorized by the River and Harbor Act of 1962,

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

was deauthorized by the WRDA of 1986; PL 99-662 (Section 1002) Nov. 17, 1986, 99th Congress, Title X. The channel modification project authorized by the 1962 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

Local Cooperation. None required.

Terminal Facilities. There are no publicly owned wharves. There are three coal wharves, an oil receiving facility, and a few small fish wharves. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$77,594. Engineering and design for repair of the East and West Piers failed tie rods, continued at a cost of \$49,899. Option year one of the FY00 contract for maintenance dredging was exercised and completed this FY, removing 63,836 cubic yards of shoal material at a cost of \$319,810. Engineering, design, surveys, and supervision and administration cost \$54,619. Funds in the amount of \$37,687 were expended on disposal actions for transfer of the lighthouse to the Ontonagon County Historical Commission.

All work authorized under previous Acts was completed in 1938. Navigation structures range from fair to excellent condition. Several areas along the piers have had tie rod failures, which requires repairs within the next two years. Total cost of the existing project to end of FY was \$24,742,139, of which \$953,903 was for new work, \$23,767,236 for maintenance and \$21,000 for diked disposal.

45. PENTWATER HARBOR, MI

Location. On east shore of Lake Michigan, 146 miles northeasterly from Chicago, IL, and 14 miles southerly from Ludington, MI. (See NOAA Nautical Chart 14907.)

Existing Project. Provides for widening old entrance channel to 150 feet between parallel piers and revetments, channel to extend from Lake Michigan to Pentwater Lake, with a depth of 16 feet. Piers and revetments are built of stone filled timber cribs and piling and capped with concrete. The 200-foot extension to south pier portion of project is

considered inactive. Estimated cost (1954) of this portion is \$65,100. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Several small privately owned wharves on west end of Pentwater Lake. The City and Michigan Waterways Commission jointly constructed a dock on northwest side of Pentwater Lake for public use. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$30,320. The FY99 contract for repair of the North Pier and Revetment, Sections A-D, F, F1, (Phase II) was completed this FY at a cost of \$375,384. An adjustment of -\$13 in cost was made to engineering and design during construction. Acquisition of real estate easement cost \$20,234. A contract for maintenance dredging was awarded and completed this FY, removing 16,396 cubic yards of shoal material at a cost of \$82,744. Engineering, design, surveys, and supervision and administration cost \$88,562.

Existing project was completed in 1959 except for a 200-foot extension to the south pier, which is not considered necessary under present conditions. For additional details see page 1468 of Annual Report for 1962. Navigation structures are in excellent condition. Total cost of the existing project to end of FY was \$15,074,629, of which \$179,899 was for new work, and \$14,894,730 for maintenance.

46. POINT LOOKOUT HARBOR (AU GRES RIVER), MI

Location. At Au Gres River on westerly shore of Lake Huron at entrance to Saginaw Bay, about 17 miles northeast of mouth of Saginaw River. (See NOAA Nautical Chart 14863.)

Existing Project. Provides for construction of a small boat harbor having a 12-foot deep, 100-foot wide, 2,800-foot long outer entrance channel; a 5,600-foot long, 100-foot wide inner entrance channel having a 10-foot depth; an 8,270-foot long, 6-foot deep river channel ending just downstream from U.S. 23 highway bridge and having a width of 60 feet; a

DETROIT, MI, DISTRICT

4,000-foot long north breakwater and a 3,800-foot long south breakwater. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Small boat marina facilities are under construction by the State of Michigan.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$9,998. A contract for maintenance dredging was awarded and completed this FY, removing 17,573 cubic yards of shoal material at a cost of \$413,575. This contract was issued as a modification under the FY00 dredging contract for Harrisville Harbor. Engineering, design, surveys, and supervision and administration cost \$62,399.

Existing project was completed in 1974. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$7,307,899 of which \$2,642,584 was for new work, \$4,543,715 for maintenance (includes \$9,257 contributed funds) and \$121,600 for diked disposal.

47. PORT AUSTIN HARBOR, MI

Location. On west shore of Lake Huron at extreme southeastern limit of Saginaw Bay, and 29 miles south of AuSable River (Oscoda). (See NOAA Nautical Chart 14863.)

Existing Project. A harbor of refuge at the mouth of Bird Creek, consisting of a harbor basin dredged to a depth of 10 feet protected by a breakwater structure, and for dredging an entrance channel to the harbor basin to a depth of 12 feet. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. A number of docks near mouth of Bird Creek and a State-owned dock inside breakwater. Facilities accommodate recreational craft and are considered adequate for existing traffic.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and

miscellaneous inspections and reports performed by Government forces cost \$13,861.

Navigation structures are in good condition. Total cost for existing project to end of FY was \$5,459,972; of which \$3,363,334 was for new work (includes \$172,100 contributed funds), \$1,937,638 for maintenance and \$159,000 for diked disposal.

48. PORT SANILAC HARBOR, MI

Location. On southwest shore of Lake Huron, 30 miles north of Port Huron, MI. (See NOAA Nautical Chart 14862.)

Existing Project. Provides for a harbor of refuge protected by breakwater structures extending to 12-foot depth contour in lake; for dredging a harbor basin 10 feet deep; for dredging an entrance channel 12 feet deep; a 70-foot extension of the south breakwater; a 300-foot arm added to the north breakwater; and riprap placed at the lakeward side of the breakwater addition. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There is one privately owned dock used principally as a fishing terminal by owner and a municipally owned pier for recreational craft. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$47,537. A contract for maintenance dredging was awarded and completed this FY, removing 19,916.6 cubic yards of shoal material at a cost of \$159,562. Engineering, design, surveys, and supervision and administration cost \$75,854. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$9,895.

The project was completed in 1951 except for latest modification that was completed in FY 76. The breakwaters are in good condition, with miscellaneous repairs programmed in the next 5 years. Total cost of the existing project to end of FY was \$5,717,367, of which \$1,733,071 was for new work (includes \$487,108 contributed funds), \$3,975,138 for maintenance (includes \$115,000 contributed funds) and \$9,158 for diked disposal.

49. PORT WASHINGTON HARBOR, WI

Location. On the west shore of Lake Michigan, about 53 miles south of Manitowoc and about 29 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14904.)

Previous Project. For details, see page 1938 of Annual Report for 1915, page 1459 of Annual Report for 1938, and page 30-14 of Chicago District Annual Report for 1975.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-27.

Construction of a small boat harbor within the existing harbor was authorized by the Chief of Engineers, June 12, 1975, under authority of Section 107, 1960 River and Harbor Act, as amended.

Local Cooperation. Fully complied with.

Terminal Facilities. There is one coal wharf, a petroleum tank farm and several fishing wharves. City provided a wharf which is open to public use. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$24,454. Engineering and design for future maintenance dredging cost \$816.

The existing project was completed in 1936. The 1958 modification was deauthorized in 1977. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was \$7,681,137, of which \$4,206,204 was for new work (includes \$1,624,000 contributed funds), \$3,464,312 for maintenance and \$10,621 for diked disposal.

50. PORT WING HARBOR, WI

Location. On south shore of Lake Superior, 34 miles easterly from Duluth, MN. (See NOAA Nautical Chart 14966.)

Existing Project. Provides for two parallel piers at entrance, 835 and 1,017 feet long, respectively, 200 feet apart; an entrance channel between piers 150 feet

wide with 15-foot depth; an irregular-shaped turning basin 15 feet deep at inner end of piers from which two inner channels with 8-foot depth extend. One of these is 60 feet wide extending southerly for 340 feet and one 70 feet wide extending easterly 1,170 feet.

Portion of dredging entrance channel to complete project width and depth is considered unnecessary to meet present navigation requirements. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There are four privately owned fishing wharves which are considered adequate for existing conditions.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$3,239. Repair of the Breakwater was performed using the U.S. Derrickbarge SCHWARTZ at a cost of \$43,456. Supervision and administration cost \$1,910.

Existing project is complete, except channel between piers, and has been dredged to only a 100-foot width. Widening the channel an additional 50 feet was considered unnecessary to meet present navigation requirements. That work was classified inactive and deauthorized on August 5, 1977, under Section 12 of Public Law 93-251. Land owned by the United States totals 7.80 acres. Navigation structures are in fair condition. Total cost of the existing project to end of FY was \$1,554,601, of which \$63,393 was for new work and \$1,491,208 for maintenance.

51. PORTAGE LAKE HARBOR, MI

Location. On east shore of Lake Michigan about 186 miles northeasterly from Chicago, IL, and about 37 miles northerly from Ludington, MI. (See NOAA Nautical Chart 14939.)

Existing Project. Provides for a harbor of refuge with an entrance channel from Lake Michigan to Portage Lake protected by piers and revetments. Project depth is 18 feet. For additional details see page 1297 of Annual Report for 1958. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

DETROIT, MI, DISTRICT

Terminal Facilities. There are landing places and marinas at inner end of Portage Lake. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$57,044. Safety repairs performed by hired labor cost \$1,975. Engineering and design for repair of the North and South Piers, Sections A&B, (Phase I) was completed at a cost of \$26,813. A contract for this work was awarded this FY in the amount of \$4,371,525. The contract was approximately 50% complete at the end of the FY at a cost of \$2,609,076. Engineering and design during construction cost \$9,676. Engineering and design for repair of the North and South Revetment (Phase II) was initiated at a cost of \$3295. Supervision and administration cost \$129,151.

Existing project was substantially completed in 1912. For additional details on completion of existing project see page 1298 of Annual Report for 1958. Navigation structures are in generally poor condition and major repairs will be underway in the near future. Total cost of the existing project to end of FY was \$6,146,696 of which \$256,129 was for new work and \$5,890,567 for maintenance.

52. ROUGE RIVER, MI

Location. Rises in Oakland and Washtenaw Counties, MI, 30 miles long, flows southeasterly through Wayne County, and joins Detroit River at westerly limit of city of Detroit. (See NOAA Nautical Chart 14854.)

Previous Project. For details see page 1530 of Annual Report for 1932, and page 1558 of Annual Report for 1938.

Existing Project. Provides for: (a) Main channel from Detroit River through Short Cut Canal extending to upstream limit of the project, a distance of 3.5 miles. Project depths are 25 and 21 feet in navigation channel, 21 feet in turning basin, and 13 feet in upper reach of project. (b) Old Channel from Detroit River extending to junction of Old Channel with Short Cut Canal. Project depths are 25, 18, 17, and 21 feet. For additional details see page 1324 of Annual Report for 1963. In 1973, work authorized by the 1962 River and Harbor Act was reclassified from the active to inactive category. Estimated cost (1972) of this work is \$880,000. Except for dredging 25-foot channel 1,150 feet upstream from mouth of Old Channel, work

authorized in Act of Aug. 30, 1935, is considered inactive. Estimated cost (1958) of inactive portion is \$255,000. Work authorized by Act of July 3, 1958, is considered inactive. Estimated cost (1960) of this work is \$210,000. (See Table 21-B for authorizing legislation.)

Local Cooperation. Act of Oct. 23, 1962, requires local interests to provide lands and rights-of-way for construction upon request of the Chief of Engineers; hold the United States free from damages; provide terminal facilities to accommodate prospective commerce considered in report of District Engineer; dredge and maintain areas between the Federal improvement and terminal facilities to depths commensurate with improved Federal channel; make alterations in docks, bulkheads and other structures, and take such other measures as may be necessary to assure stability of banks adjacent to channel; and provide bridge protection. The assurances of local cooperation for the River and Harbor Act of 1962 were furnished by the Michigan State Waterways Commission and accepted on Jan. 7, 1965. Fulfillment of all items of local cooperation has not been accomplished.

Terminal Facilities. Numerous large commercial docks for handling various type cargo. Details on actual port and harbor facilities are contained in the Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, confined disposal facility monitoring, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$97,819. Engineering and design for future maintenance dredging cost \$81,048.

Work authorized before 1962 modification is complete or deauthorized. For additional details on completion of existing project see Annual Report for 1962. Total cost of the existing project to end of FY was \$39,014,332, of which \$675,251 was for new work (\$29,563 was expended from Emergency Relief Act Funds), \$23,431,763 for maintenance and \$14,907,318 for diked disposal.

53. SAGINAW RIVER, MI

Location. Formed by union of Tittabawassee and Shiawassee Rivers, 22 miles long, and flows northerly

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

into extreme inner end of Saginaw Bay, Lake Huron. Cities of Saginaw and Bay City are on the river. (See NOAA Nautical Chart 14867.)

Previous Project. For details, see page 1957 of Annual Report for 1915; and page 1550 of Annual Report for 1938.

Existing Project. Provides for an entrance channel 27 feet deep and 350 feet wide from 27-foot contour in Saginaw Bay to river mouth; thence a channel 26 feet deep and 200 feet wide to New York Central Railroad Bridge at Bay City; thence 22 feet deep and 200 feet wide to C&O Railroad Bridge in Saginaw; thence 16.5 feet deep and 200 feet wide to upstream limit at Green Point. Project also provides for five turning basins; one 25 feet deep at Essexville, 600 feet wide with a maximum length of 1,850 feet; one 22 feet deep on east side of channel about 1 mile upstream from Cass Avenue in Bay City, 650 feet wide and 1,000 feet long; one 20 feet deep at Carrollton, 100 to 300 feet wide and 900 feet long; one 20 feet deep downstream from C&O Bridge in Saginaw, 650 feet wide and 1,000 feet long; and one 15 feet deep between Bristol Street Bridge and New York Central Railroad Bridge in Saginaw. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Numerous large commercial docks for handling a great variety of cargo. Details on actual port and harbor facilities are in Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, confined disposal facility monitoring, support of water control center and miscellaneous inspections and reports performed by Government forces and contract cost \$400,865. Dredged material management plans study for the Upper Saginaw River continued at a cost of \$94,258. The FY00 dredging contract was completed this FY, removing 166,681 cubic yards of shoal material at a cost of \$1,179,354. A contract for maintenance dredging of the Bay and River was awarded this FY in the amount of \$463,900. The contractor began mobilizing this FY at a cost of \$57,540. Dredging will begin next FY. Engineering, design, surveys, and supervision and administration cost \$207,526.

Existing project is complete except for small part of the work authorized by the Act of October 23, 1962. Section D (Sixth Street Turning Basin) of the 1962 Act is complete except for the channel portion, which is pending modification. Total cost of the existing project to end of FY was \$97,646,301, of which \$14,930,727 was for new work (includes \$13,600 for contributed funds), \$61,763,686 for maintenance, and \$20,951,888 for diked disposal.

54. ST. CLAIR RIVER, MI

Location. A 40 mile long section of Great Lakes connecting channels which flows southerly from Lake Huron and discharges into Lake St. Clair. (See NOAA Nautical Chart 14852.)

Existing Project. Provides for channels through St. Clair River, which, at low water datum, are suitable for vessels drawing 25.5 feet. Project also provides for improvement of North Channel outlet, 100 feet wide and 10 feet deep, for recreational craft. Project depths are referred to low water datums for Lakes Huron and St. Clair; 577.5 and 572.3 feet above mean water level at Rimouski, Quebec, IGLD 1985. (See Tables 21-B

and 21-H for authorizing legislation and features of existing project.) Act of July 24, 1946, provides for widening and deepening of southeast bend and improvement of outlet of north channel at an estimated cost (1986) of \$870,000; \$435,000 Federal and \$435,000 non-Federal. On June 16, 1969, the Director of Civil Works approved substitution of the middle channel of the St. Clair River for the authorized north channel. Subsequently, however, the work authorized by the River and Harbor Act of July 24, 1946, was deauthorized by the WRDA of 1986; PL 99-662, Nov. 17, 1986, 99th Congress, Title X.

Local Cooperation. None required.

Terminal Facilities. This improvement serves through commerce, between the upper and lower Great Lakes, and has not materially influenced terminal facilities along its route. A number of privately owned piers and wharves are at Port Huron, Marysville, St. Clair, and Marine City, MI, which handle coal, limestone, petroleum products, wood-pulp, salt and general cargo. These installations satisfy present commerce requirements.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, support of water control center, and miscellaneous inspections

DETROIT, MI, DISTRICT

and reports performed by Government forces and contract cost \$120,152. Location and removal of obstructions was performed using the U.S. Cranebarge VELER and Survey Vessel PAJ at a cost of \$207,240. The contract awarded last FY for maintenance dredging was completed this FY, removing 110,600 cubic yards of shoal material at a cost of \$1,760,174. Engineering, design, surveys, real estate, and supervision and administration cost \$206,811.

Existing project is complete. Total cost of the existing project to end of FY was \$49,736,534, of which \$19,213,246 was for new work and \$30,523,288 for maintenance.

55. ST. JOSEPH HARBOR, MI

Location. On east shore of Lake Michigan, 60 miles easterly from Chicago, IL, and 24 miles southerly from South Haven, MI. (See NOAA Nautical Chart 14930.)

Previous Project. For details see page 1945 of Annual Report for 1915, and page 1470 of Annual Report for 1938.

Existing Project. Provides for protecting mouth of St. Joseph River by two piers, 250 to 325 feet apart at their inner and outer ends, respectively, having lengths of 2,758 feet on north side and 2,603 feet on south side; for a channel 21 feet deep from Lake Michigan to mouth of Benton Harbor Canal, a length of about 6,900 feet with widths of 265 feet at outer end of piers, 190 feet at inner end of piers and revetments, thence generally 215 feet to lower end of turning basin, increasing to 250 feet above the turning basin to mouth of Paw Paw River, thence generally 110 feet in Paw Paw River to mouth of Benton Harbor Canal; for dredging channel in Benton Harbor Canal up to west line of Riverview Drive extended northerly, to 18 feet deep and 80 feet wide; and a turning basin 18 feet deep on north side of channel above mouth of Morrison Channel and a turning basin 18 feet deep near mouth of Paw Paw River. Public Law 88-88 declared a portion of Benton Harbor Canal a non-navigable stream. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several commercial wharves for

handling coal, building materials, petroleum products, and miscellaneous commodities. A package freight terminal and a public docking facility is also available. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$107,805. Environmental activities for a disposal area and polluted dredged material continued at a cost of \$48,955. Safety maintenance performed by hired labor cost \$7,186. A contract was awarded and completed this FY for maintenance of the inner harbor and excavation and landfill disposal. Approximately 29,498 cubic yards of dredged material was removed at a cost of \$168,614, and excavation of 26,806 cubic yards of existing material cost \$290,557. This contract was issued as a modification under the FY99 dredging contract. A contract for maintenance dredging the outer channel was awarded and completed this FY, removing 36,897 cubic yards of shoal material at a cost of \$194,023. This contract was also for beach nourishment. This contract was also issued as a modification under the FY99 dredging contract. Engineering, design, real estate, surveys, and supervision and administration cost \$175,829. Monitoring in connection with Section 111 of P.L. 90-483 cost \$54,625. Beach nourishment in conjunction with the above maintenance dredging of the outer channel contract cost \$68,687. Supervision and administration under Section 111 cost \$7,608.

Existing project was completed in 1956. For additional details on completion of existing project see page 1454 of Annual Report for 1962. Navigation structures are in generally good condition. Total cost of the existing project to end of FY was \$33,699,540, of which \$1,804,485 was for new work, \$30,294,763 for maintenance, \$638,076 for diked disposal and \$962,216 for rehabilitation.

56. SAUGATUCK HARBOR AND KALAMAZOO RIVER, MI

Location. Harbor is on east shore of Lake Michigan, 90 miles northeasterly from Chicago, IL, and 22 miles northerly from South Haven, MI. (See NOAA Nautical Chart 14906.)

Previous Project. For details see page 1947 of Annual Report for 1915, and page 1475 of Annual Report for 1938.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Existing Project. Entrance channel protected by parallel piers at mouth of Kalamazoo River and a river channel to village of Saugatuck, MI. Project depths: 16 feet in entrance channel, 14 feet in river channel. Additional details on page 1456 of 1962 Annual Report. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. At city of Saugatuck, MI, there are several landing places for recreational craft and one for small commercial vessels. At village of Douglas, MI, there is a landing pier. Facilities are considered adequate for present traffic.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies and miscellaneous inspections and reports performed by Government forces and contract cost \$52,218. Engineering and design for repair of the North and South Pier, Sections C-F, (Phase II), continued at a cost of \$111,282. FY00 emergency dredging contract was completed this FY, removing 27,597 cubic yards of shoal material at a cost of \$259,141. Engineering, design, surveys, and supervision and administration cost \$59,922.

Existing project was completed in 1903. Navigation structures are in excellent to poor condition and are under major repair. Total cost of the existing project to end of FY was \$10,369,252, of which \$364,527 was for new work and \$10,004,725 for maintenance.

57. SAXON HARBOR, WI

Location. On the south shore of Lake Superior in Wisconsin at the mouth of Oronto Creek, 27 miles southeast of the harbor at Bayfield, WI, and 21 miles westerly of the harbor at Black river, MI; 99 miles east of Duluth-Superior Harbor and 60 miles west of Ontonagon Harbor, MI. (See NOAA Nautical Chart 14965.)

Previous Project. For details see page 1254 of Annual Report for 1962.

Existing Project. Provides for east and west breakwaters, an outer channel 10 feet deep, an inner basin and side channel 8 feet deep, and diversion of Oronto Creek to Parkers Creek by three short reaches of channel excavation and a levee. For detailed dimensions of features see page 1025 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. One wharf 300 feet long on the east side of present harbor basin constructed by local interests.

Operations During Fiscal Year. Maintenance: Condition surveys and inspections and reports performed by Government forces cost \$614. A contract for maintenance dredging was awarded and completed this FY, removing 6,589 cubic yards of shoal material at a cost of \$133,167. Engineering, design, surveys, and supervision and administration cost \$35,107.

The project was completed in March 1968. A reconnaissance report was completed in August 1971 concerning erosion of the shoreline west of the harbor. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$1,918,093, of which \$711,777 was for new work and \$1,206,316 for maintenance. The new work cost does not include \$50,193 contributed funds.

58. SEBEWAING RIVER, MI

Location. At mouth of Sebewaing River on south shore of Saginaw Bay about 10 miles south of Bay Port, MI. (NOAA Nautical Chart 14863.)

Previous Project. For details see page 1007 of Annual Report for 1912.

Existing Project. Provides for an entrance channel 8 feet deep, 100 feet wide, and about 15,000 feet long in Saginaw Bay. (See Table 21-B for authorizing legislation.)

Terminal Facilities. A number of small wharves used by fishing vessels and other light-draft craft are along the river. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$12,123. The limited dredged material management plans study continued at a cost of \$21,929. Engineering and design for future maintenance dredging was initiated at a cost of \$1,971.

Existing project was completed in 1903. Total cost of the existing project to end of FY was \$4,320,792,

DETROIT, MI, DISTRICT

of which \$35,573 was for new work and \$4,285,219 for maintenance.

59. SHEBOYGAN HARBOR, WI

Location. On west shore of Lake Michigan about 26 miles south of Manitowoc and about 55 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14922.)

Previous Project. See page 1381 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-27.

For detailed description see page 1230 of Annual Report for 1963. New work for project as completed cost \$648,271, exclusive of amounts expended on previous projects. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Three wharves for handling coal, petroleum products and miscellaneous commodities. City provided a public wharf. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$39,571. Safety maintenance performed by hired labor cost \$1,755. Engineering and design for repair of the South Pier, Sections I,J,K, were initiated at a cost of \$41,191. Real estate and supervision and administration cost \$22,463.

Existing project was completed in 1904. Construction of north breakwater was commenced in October 1913 and completed in October 1915. Dredging entrance channel to existing project depth was commenced in June and completed in July 1938. Work on 1954 modification was completed in December 1956. Inner 260 feet of south pier was replaced with a revetment by private interests under permit granted July 16, 1931, by the Secretary of War. Piers, therefore, are maintained only for a length of about 2,490 feet. Sheboygan River is navigable about 2.4 miles above its mouth for craft drawing not more than 2 feet. Navigation structures range from fair to good condition. It is anticipated repairs will be required in the next 5 to 7 years. Total cost of the existing project to end of FY was \$11,225,367, of

which \$1,136,088 was for new work, \$8,572,459 for maintenance, \$907,792 for diked disposal and \$609,028 for rehabilitation.

60. SOUTH HAVEN HARBOR, MI

Location. On east shore of Lake Michigan, 77 miles northeasterly from Chicago, IL, and 24 miles northerly from St. Joseph, MI. (See NOAA Nautical Chart 14906.)

Previous Project. For details see page 1947 of Annual Report for 1915, and page 1473 of Annual Report for 1938.

Existing Project. An entrance channel protected by parallel piers and revetments at mouth of Black River, a river channel and a turning basin. Project depths are 21 feet in entrance channel and 19 feet in river channel and turning basin. For additional details see page 1455 of Annual Report for 1962. The turning basin feature was subsequently deauthorized by Section 116 of the WRDA of 1992 (PL 102-580). (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several wharves for handling coal, building materials, wood-pulp, fish, and miscellaneous commodities; two have warehouses. Facilities satisfy current commerce requirements.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$19,858. Safety maintenance performed by hired labor cost \$6,012. Engineering and design for repair of the North Pier, Sections A-C, (Concrete Caps) continued at a cost of \$73,811.

Existing project was completed in 1960. Project now being maintained to 14-foot and 12-foot depths, respectively (in lieu of the 21 feet and 19 feet authorized), which is adequate for current usage. For additional details on completion of existing project see page 1456 of Annual Report for 1962. Navigation structures are in good to fair condition and are scheduled for repair. Total cost of the existing project to end of FY was \$11,321,860, of which \$984,426 was for new work, \$8,662,977 for maintenance, \$42,381 for diked disposal and \$1,632,076 for rehabilitation.

61. STURGEON BAY AND LAKE MICHIGAN SHIP CANAL, WI

Location. On west shore of Lake Michigan about 52 miles northeast of Green Bay and about 128 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14919.)

Previous Project. See page 1373 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 31-C, page 30-27. For detailed description, see page 1223, Annual Report for 1963. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. As the canal and connecting channel is a through waterway, only terminal facilities are in city of Sturgeon Bay, 4 miles from west end of revetted portion of canal. These facilities consist of two wharves for handling coal, petroleum products and miscellaneous commodities, and four shipbuilding yards. City of Sturgeon Bay provided a public wharf about 5 miles northwesterly from city of Sturgeon Bay. Two major shipyards are located in Sturgeon Bay where repair facilities are available including dry docks, marine railways and hoists. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, miscellaneous inspections and reports performed by Government forces cost \$77,598. Repairs to the North and South Breakwater, Sections A-C, and North Revetment, Section M, were performed using the U.S. Derrickbarge SCHWARTZ at a cost of \$103,244. Engineering and design for repair of the South Revetment, Section N, continued at a cost of \$26,753. Engineering and design for future maintenance dredging cost \$4,478. Supervision and administration cost \$25,377.

Navigation structures are in good to fair condition, the South Revetment, Section N, is in poor condition and is programmed for major repair. Total cost of the existing project to end of FY was \$13,438,183, of which \$1,059,722 was for new work, \$11,182,443 for maintenance, \$311,119 for diked disposal and \$884,899 for rehabilitation. In addition, between April 25, 1893, and June 30, 1917, \$235,940 was expended for operating and care of works of

improvements under provision of permanent indefinite appropriations for such purposes.

62. TWO RIVERS HARBOR, WI

Location. On west shore of Lake Michigan about 82 miles north of Milwaukee and about 101 miles from Green Bay, WI, via Sturgeon Bay Canal. (See NOAA Nautical Chart 14903.)

Previous Project. See page 1377, Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-28.

For detailed description see page 1226 of Annual Report for 1963. Completed project cost \$147,463, exclusive of the amount expended on previous projects. The 1935 River and Harbor Act portion of project is essentially complete, except for dredging a 10-foot width along each side of the entrance channel between the piers. The uncompleted portion of the project authorized by the 1935 R & H Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. A coal wharf and several fishing wharves. City provided a wharf for receipt of petroleum products and public use. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$22,680. Engineering and design for repair of the South Entrance Pier continued at a cost of \$96,336. The contract awarded last FY for maintenance dredging was completed this FY, removing 41,072 cubic yards of shoal material at a cost of \$310,716. Engineering, design, surveys, and supervision and administration cost \$22,278.

Existing project is complete except for portion deauthorized in December 1989. Present width of channel is considered adequate for present and reasonably prospective commerce. North Pier was completed in 1908. North Revetment, completed in 1917, was rebuilt in May to August 1962. Dredging entrance channel and inner basin to existing project depth was commenced in March and substantially completed in May 1937. Navigation structures range

DETROIT, MI, DISTRICT

from fair to good condition. Repairs are programmed in the near future. Total cost of the existing project to end of FY was \$10,113,296, of which \$360,320 was for new work, \$8,507,447 for maintenance, \$1,187,472 for diked disposal and \$58,057 for minor rehabilitation.

63. WHITE LAKE HARBOR, MI

Location. On the east shore of Lake Michigan 120 miles northeasterly from Chicago, IL, and 45 miles southerly from Ludington, MI. (See NOAA Nautical Chart 14935.)

Existing Project. Parallel piers, revetments, and a channel 16 feet deep, 200 feet wide, 1,950 feet long, extending from Lake Michigan to White Lake. For additional details see page 1465 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. A privately owned chemical shipping dock on the north side of the lake about 3 miles from the inner end of revetted entrance channel. Across the lake, at village of Whitehall, there are several installations serving light draft vessels. These terminals satisfy present recreational and commercial traffic requirements.

Operations During Fiscal Year. Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$20,084. Safety maintenance performed by hired labor cost \$3,795. Funds in the amount of \$26,616 were expended this FY for real estate activities in support of acquisition of permanent easements. A contract for maintenance dredging was awarded and completed this FY, removing 6,083 cubic yards of material at a cost of \$59,133. Engineering, design, surveys, and supervision and administration cost \$66,563. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$59,587.

Existing project was completed in 1908. Stone was placed on the north and south revetments in FY 1972. Navigation structures are in excellent condition. Project now being maintained to 14-foot depth authorized, which is adequate for current usage. Total cost of the existing project to end of FY was

\$12,786,143, of which \$457,562 was for new work and \$12,328,581 for maintenance.

64. RECONNAISSANCE AND CONDITION SURVEYS

See Table 21-J.

65. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 21-C.

66. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Section 107. Public Law 86-645 (pre-authorization.) Navigation activities pursuant to Section 107 of the River and Harbor Act of 1960, as amended.

Detroit River Navigation Improvement, MI – By letter dated February 26, 2001, the Detroit/Wayne County Port Authority formally requested the Corps of Engineers' assistance under Section 107 to implement a solution for the purpose of improving navigational access to the City of Detroit's waterfront along the Detroit River. Feasibility analysis was initiated this FY to develop potential solutions, probable costs, and potential Federal interest. Funds in the amount of \$43,053 were expended in FY01.

Douglas County, WI – By letter dated 10 September 1999, Douglas County, Wisconsin requested that the Corps of Engineers conduct a study pursuant to constructing a harbor of refuge in Douglas County. Funds in the amount of \$884 were expended in FY01. Project was terminated.

Duluth (McQuade Road) Harbor, MN - The Water Resources Development Act of 1996 authorized the Corps of Engineers to undertake investigations to determine the feasibility of a navigation project at Duluth, MN. Funds were provided by Congressional Add in FY98, FY99, and FY00 to conduct a feasibility study for a harbor of refuge at Duluth (McQuade Road) Harbor.

By letter dated January 8, 1998, the State of Minnesota made a formal request under Section 107

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

of the River and Harbor Act of 1960, as amended. A FONSI was signed in February 2000, the plans and specifications phase continued. The State was recently able to acquire the required real estate under a lease agreement with the City of Duluth. Funds in the amount of \$30,055 were expended in FY01.

Grand Marais, MN – The project is on hold until receipt of a formal request from the State of Minnesota under Section 107 of the River and Harbor Act of 1960, as amended.

Lakeshore State Park, Milwaukee, WI – The Lakeshore State Park project was initiated in FY01 as a Congressional Add. The project site is located in the City of Milwaukee, Wisconsin, along the western shoreline of Lake Michigan. The project consists of the construction of a harbor of refuge including harbor improvements and two breakwaters. Despite being in a commercial harbor of refuge, wave analysis studies performed by a consultant hired by the project sponsor indicate that the basin is capable of producing waves capable of endangering small watercraft. The proposed harbor of refuge extends from Municipal Pier and extends west approximately 1,300 feet. This harbor of refuge will provide a sheltered area and improve navigation for small recreational craft. The State of Wisconsin has provided the preliminary design documents and plans and specifications for portions of the project, but still needs to model and design the municipal pier breakwater. The State plans to divide the project into a Federal contract and a State contract. The Federal contract would only include portions of the project that are appropriate for a Section 107 project. Funds in the amount of \$34,437 were expended in FY01 to initiate the feasibility study.

Olde Stone Quarry Park, Door County, WI – Olde Stone Quarry Park is a nine (9) acre park along Green Bay in Door County, Wisconsin. The site is about 4.5 miles north of the town of Sturgeon Bay, Michigan. During storms, moderate to high winds travel across Green Bay and create heavy wave action along the west shore of Door County. The shoreline has extensive exposure to Green Bay and Sturgeon Bay. The heavy wave action creates a safety hazard for small boats. The shoreline along Olde Stone Quarry Park is naturally deep and the proposed harbor of refuge would provide an additional safe harbor for small boats. The U.S. Coast Guard has indicated that a new harbor in this area could cut their yearly Search and Rescue missions in half. Funds in the amount of \$48,765 were expended during FY01 to continue the feasibility study. However, because of the

recreational nature of the navigation in the harbor, work on the feasibility study was suspended in FY01.

Taconite Harbor, MN - The Water Resources Development Act of 1996 authorized the Corps of Engineers to undertake investigations to determine the feasibility of a navigation project at Taconite Harbor, MN. Funds were provided by Congressional Add in FY98 to construct the harbor of refuge at Taconite Harbors.

By letter dated January 8, 1998, the State of Minnesota made a formal request under Section 107 of the River and Harbor Act of 1960, as amended. Work on the project design was initiated in FY98 and plans and specifications were completed on June 22, 1999. The State of Minnesota prepared the design analysis, plans and specifications and the Environmental Assessment. A Project Cooperation Agreement was executed on July 27, 1999, and the construction contract was advertised on August 27, 1999. Construction started on December 3, 1999. The construction was completed in September 2001 with contract closeout scheduled for June 2002. Funds in the amount of \$410,057 were expended in FY01. Total project cost is estimated to be \$3,852,000, of which the Federal share would be \$1,500,000.

Two Harbors, MN - The Water Resources Development Act of 1996 authorized the Corps of Engineers to undertake investigations to determine the feasibility of a navigation project at Two Harbors, MN. Funds were provided by Congressional Add in FY98 to construct the harbor of refuge at Two Harbors.

By letter dated January 8, 1998, the State of Minnesota made a formal request under Section 107 of the River Harbor Act of 1960, as amended. Work on the project design was initiated in FY98. The State of Minnesota reviewed the draft Project Cooperation Agreement in 2001 and has been working with the local community to acquire the required real estate. Funds in the amount of \$155,338 were expended in FY01.

BEACH EROSION CONTROL

67. AUTHORIZED BEACH EROSION

CONTROL PROJECTS

River and Harbor Act of 1962, as amended, Beach Erosion Control. None.

68. EMERGENCY SHORE PROTECTION

Authority for emergency streambank and shoreline protection of public works and non-profit services (Section 14 Flood Control Act of 1946, as amended).

Belle Isle Park, City of Detroit, MI – By letter dated November 25, 1998, the City of Detroit, formally requested the Corps of Engineers' assistance in providing approximately 1,100 feet of emergency streambank protection along the Detroit River, to protect a City of Detroit's island park (Belle Isle) from further damage. Funds in the amount of \$5,383 were expended in FY01 to continue the Planning and Design Analysis (PDA) phase.

Belle Isle South Shore, Detroit, MI – By letter dated January 30, 2001, the City of Detroit formally requested the Corps of Engineers' assistance in providing emergency streambank protection along the Detroit River, to protect a City of Detroit's island park (Belle Isle) from further damage. Planning and Design Analysis (PDA) was initiated this FY. Funds in the amount of \$14,913 were expended in FY01.

City of Escanaba, Delta County, MI - By letter dated November 3, 1997, the City of Escanaba requested the Corps of Engineers to plan and design for approximately 1,400 feet of a shoreline erosion problem threatening the City of Escanaba's water treatment plant, in Delta County, MI. The project was complete in FY00. Funds in the amount of \$57,363 were expended in FY01 of which \$12,518 was contributed by the City of Escanaba to closeout the project.

Combined Sewer Outfall No. 6, City of South Bend, IN - By letter dated April 6, 1999, the City of South Bend requested the Corps of Engineers' assistance for a study of stream bank erosion problem threatening CSO #6. The site is located on the south bank of the St. Joseph River between Leland Avenue and Riverside drive. The riverbank is steep and is severely eroded. The plans specifications phase continued this FY at a cost of \$6,032.

Detroit River Shoreline, MI – By letter dated May 21, 2001, the City of Detroit formally requested the Corps of Engineers' assistance in providing emergency streambank protection along the Detroit River between the GM Renaissance Center and Hart Plaza to protect the Bates Street Outfall structure from further deterioration. Initial coordination for the Planning and Design Analysis (PDA) was initiated and funds in the amount of \$23,930 were expended in FY01.

Gibraltar, MI – By letter dated December 6, 1999, the City of Gibraltar formally requested the Corps of Engineers' assistance in providing emergency streambank protection along the Detroit River to protect the Horse Island Bridge and the embankment of South Gibraltar Road from further deterioration. Funds in the amount of \$30,505 were expended in FY01 to continue the Planning and Design Analysis (PDA) phase.

Kinnickinnic River, Milwaukee County, WI - By letter dated May 6, 1999, the Milwaukee Metropolitan Sewerage District (MMSD) requested the Corps of Engineers' assistance in protecting a county road and county sewer outfalls from further deterioration along the Kinnickinnic River. Planning and design analysis (PDA) continued in FY01 in the amount of \$4,650.

Leeper Park Island Wall, City of South Bend, IN - By letter dated April 6, 1999, the City of South Bend requested the Corps of Engineers' assistance for a study of stream bank erosion problem threatening the two drinking water wells located on Leeper Park Island. Several sections of the deteriorated masonry stone wall have completely failed. The plans and specifications phase continued this FY at a cost of \$7,513.

Marquette Lakeshore Boulevard, MI – By letter dated September 12, 2000, the City of Marquette formally requested the Corps of Engineers' assistance in providing emergency shoreline protection along Lakeshore Boulevard in the City of Marquette, MI. Lake Superior has severely eroded the shoreline in the area threatening vital infrastructure including water mains, sanitary sewers and portions of Lakeshore Boulevard. Funds in the amount of \$51,296 were expended in FY 01 to initiate the Planning and Design Analysis.

Maumee River, Fort Wayne, MI – Section 103 of the Water Resources Development Act of 2000 provided special authority to address shore protection

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

along the Maumee River in the vicinity of the Coliseum Boulevard Bridge where a pedestrian/bike path has experienced washout. By letter dated March 30, 2001, the Board of Commissioners of the County of Allen requested assistance for a study to provide erosion control. Portions of the trail have already been relocated on the golf course fronting the river. Funds in the amount of \$1,763 were expended in FY01.

Middle Ground Island, Bay City, MI – By letter dated February 19, 2001, the City of Bay City requested the Corps of Engineers' assistance for a study of stream bank erosion problem on the West Channel of the Saginaw River adjacent to the Middleground Island Landfill in Bay County. The Planning and Design Analysis (PDA) phase was initiated at a cost of \$12,517.

North Shore Drive, City of South Bend, IN - By letter dated April 6, 1999, the City of South Bend requested the Corps of Engineers' assistance for a study of stream bank erosion problem threatening a portion of North Shore Drive. The riverbank is steep and is severely eroded adjacent to the North Shore Drive between Parkovash Avenue and Lafayette Boulevard. The plans and specifications phase continued this FY at a cost of \$12,440.

Rouge River, City of Southfield, MI – By letter dated August 29, 2000, the City of Southfield formally requested the Corps of Engineers' assistance in providing approximately 200 feet of emergency streambank protection at a slope failure along the Rouge River, to protect a 30" sanitary sewer line from damage. During FY01, Planning and Design Analysis (PDA) was completed, a Project Cooperation Agreement (PCA) was signed, and the construction contract was awarded to E.C. Korneffel Company of Trenton, MI. Funds in the amount of \$122,527 were expended in FY01.

St. Joseph River, South Bend, IN – By letter dated September 1, 2000, Indiana University at South Bend (IUSB) renewed their request that the Corps of Engineers reevaluate a proposed pedestrian bridge over the St. Joseph River in association with a Section 14 stream bank erosion protection effort. Meetings began in late FY01, and the project will be redesigned in FY02. Funds in the amount of \$14,662 were expended in FY01.

Water Resource Institute Lake Michigan, MI – In December 1999, Grand Valley State University requested the Corps of Engineers' assistance with a

bank erosion problem which was endangering its facilities. The effected property is a peninsula extending into Muskegon and is the site of the Annis Water Resources Institute of the University. The Planning and Design Analysis was completed and Construction Approval was received in August 2001. Funds in the amount of \$149,426 were expended in FY01.

69. BEACH EROSION WORK UNDER SPECIAL AUTHORIZATION

Beach erosion activities pursuant to Section 103 of the 1962 River and Harbor Act. None.

70. MITIGATION OF SHORE DAMAGES

Mitigation of Shore Damages pursuant to Section 111 of the River and Harbor Act of 1968.

Minnesota Point, Duluth Ship Canal, MN - Accelerated shoreline erosion along Minnesota Point is occurring, possibly as a result of the interruption of along shore littoral transport processes by the Federally maintained navigation structures at Duluth Entry and Superior Entry. A study was initiated in response to a request from the City of Duluth. The study evaluated whether erosion along Minnesota Point was the result of Corps structures at the Superior Entry and Duluth Entry. The study concluded that the Superior Entry was 100% responsible for erosion along the eastern end of Minnesota Point but that the Duluth Entry was not responsible for erosion along the western end of Minnesota Point. The project was terminated in FY00. Funds in the amount of \$1,374 were expended in FY01 to complete the final feasibility report. The City is still concerned about erosion along Minnesota Point and is recommending additional studies.

Saugatuck Harbor, MI – The Township of Saugatuck requested the Corps of Engineers to assess the impact of the Federally maintained navigation structures at the mouth of the Kalamazoo River. The Township is concerned those structures are interrupting the natural along shore littoral transport processes and accelerating the rate of erosion south of the Federal Structures. A previous study was initiated but terminated in 1992 due to the lack of a willing local sponsor. Funds in the amount of \$1,260 were

expended in FY01 to continue investigating the issue, developing a preliminary cost estimate, and drafting a study Fact Sheet and Feasibility Cost Share Agreement.

71. PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

Project modification activities pursuant to Section 1135(b) of the Water Resources Development Act of 1986, as amended.

Bad River, Ashland County, WI – The proposed work involves construction of a low head dam that will serve as a barrier to sea lamprey migration and spawning in this waterbody. The sea lamprey is an exotic species that parasitizes Great Lakes salmon, trout, and other species that are important components of the Great Lakes fishery and ecosystem. The Preliminary Restoration Plan was completed and the Planning and Design Analysis phase was initiated. Funds in the amount of \$6,000 were expended in FY01.

Hennepin Marsh Grosse Ile, MI – By letter dated October 21, 1999, the Township of Grosse Ile, on behalf of the Grosse Ile Nature and Land Conservancy, formally requested the Corps of Engineers' assistance under Section 1135 to implement a solution for restoring the degraded habitat of the Hennepin Marsh. A Preliminary Restoration Plan identifying potential solutions was approved on March 20, 2001. A Feasibility analysis to fully analyze the alternatives was then initiated. Funds in the amount of \$27,398 were expended in FY01.

Lake Poygan, Winnebago County, WI – By letter dated August 25, 1999, the Wisconsin Department of Natural Resources (WDNR) formally requested the Corps of Engineers' assistance under Section 1135 to participate in an investigation to determine the extent of the Corps' water level management strategy on the depletion of fish and other aquatic habitat within Lake Poygan. The Preliminary Restoration Plan was completed and the feasibility phase initiated. Funds in the amount of \$134,957 were expended in FY01.

Paw Paw River, MI – The proposed work involves construction of a low head dam which will serve as a

barrier to sea lamprey migration and spawning in this waterbody. The sea lamprey is an exotic species that parasitizes Great Lakes salmon, trout, and other species that are important components of the Great Lakes fishery and ecosystem. Funds in the amount of \$80 were expended in FY01 to continue a feasibility study of Paw Paw River, Michigan. The feasibility study addresses potential solutions to control sea lamprey in the Paw Paw River by use of either fixed-crest or variable crested dam alternatives.

SB Galien River, Berrien County, MI – The proposed work involves construction of a low head dam which will serve as a barrier to sea lamprey migration and spawning in this waterbody. The sea lamprey is an exotic species that parasitizes Great Lakes salmon, trout, and other species that are important components of the Great Lakes fishery and ecosystem. The Preliminary Restoration Plan was completed and the Planning and Design Analysis was initiated. Funds in the amount of \$5,000 were expended in FY01.

Trail Creek, LaPorte County, IN – The proposed work involves construction of a low head dam which will serve as a barrier to sea lamprey migration and spawning in this waterbody. The sea lamprey is an exotic species that parasitizes Great Lakes salmon, trout, and other species that are important components of the Great Lakes fishery and ecosystem. The Preliminary Restoration Plan will begin in FY02.

Ecosystem Restoration - Section 204 beneficial use of dredged material in connection with dredging. Projects in connection with dredging use of dredged material activities pursuant to Section 204 of Water Resources Development Act of 1992, as amended.

Cat Island Chain, Brown County, WI - Funds in the amount of \$4,430 were expended in FY01 to continue feasibility phase activities for designing restoration techniques to restore the Cat Island entrance to Green Bay Harbor, with its easterly boundary about 150 feet west of the deep-draft navigation channel extending into Green Bay.

21st Avenue, West Channel, Duluth, MN - The project is located within St. Louis Bay, Duluth-Superior Harbor, at the extreme western end of the Lake Superior. The 21st Ave, West Channel, study involves the creation of wetlands by construction of a wave barrier to enclose the inlet area and place dredged material below Low Water Datum to create

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

multiple habitats (wildlife refuge and fish habitat). The Feasibility Phase was delayed during FY01 in order to conduct additional sediment sampling in the project area. The project is awaiting the results of that additional testing.

Aquatic Ecosystem Restoration - Projects for aquatic ecosystem restoration and protection projects, for the purpose of improving the environment pursuant to Section 206 of the Water Resources Development Act of 1996.

Belle Isle Piers, Detroit, MI – Project involves investigation of alternatives to create and improve aquatic habitat in the Detroit River, in the vicinity of Belle Isle Piers (U.S. Coast Guard and the North Inselruhe piers) in the City of Detroit, Wayne County, Michigan. Such alternatives include dredging deepwater areas in order to enhance spawning/nursery fishery habitat. Funds in the amount of \$103,829 were expended in FY01 to continue the feasibility phase.

Kalamazoo County, MI – The proposed work would design and develop aquatic ecosystem restoration along Davis Creek a major tributary to the Kalamazoo River. The Planning and Design Analysis was initiated. Funds in the amount of \$54,889 were expended in FY01.

Kinnickinnic River, WI – The project consists of removing two (2) drop structures and approximately 11,075 feet of an existing concrete channel lining from downstream of 27th Street to just past 6th Street. The proposed project would restore the Kinnickinnic River channel to a more natural stream condition with meanders, shelter areas, and riffle pool complexes. The removal of the weirs would also improve upstream passage for spawning. Funds in the amount of \$8,039 were expended in FY01 to initiate the Preliminary Restoration Plan.

Koontz Lake, IN - Koontz Lake is a 346-acre public freshwater lake located in Marshal and Stark Counties, IN. The project consists of a one time removal of approximately 190,000 cubic yards of sediments that are re-suspended by boats and thus adversely impacting the aquatic habitat. Funds in the amount of \$89,367 were expended in FY01 to continue design and prepare plans and specification.

Menomonee, WI – The purpose of the project is to remove the channel lining within the Menomonee River and to mitigate the flood damages that would

result from the removal of the concrete. The concrete channel lining extends for approximately 3,700 feet from just upstream of Wisconsin Avenue to just downstream of Interstate Highway 94. Funds in the amount of \$144,914 were expended in FY01 to initiate the Feasibility Phase.

Oak Creek, WI - The Oak Creek Watershed, located within Milwaukee County, drains approximately 27 square miles and flow approximately 26 miles from its headwaters in Cudahy, Franklin, and Greenfield, and Milwaukee to Lake Michigan. The project proposes the removal of three (3) concrete and steel sheet pile drop structures which are impediments to movement of fish upstream. Funds in the amount of \$46,794 were expended in FY01 to continue the Planning and Design Analysis Phase.

Pike River, WI – The Upper Pike River is a rapidly urbanizing watershed with substantial urban and agricultural lands. The purpose of the project is to restore natural stream features and wetlands in selected reaches, enhance aquatic habitat, and improve storm water quality and overall water quality. Funds in the amount of \$4,029 were expended in FY01 to initiate the Preliminary Restoration Plan.

Princeton Dam, WI – The local sponsor, the Wisconsin Department of Natural Resources, withdrew from the Section 206 study pending completion of a Master Plan for Lake Puckaway by the local lake association. The project involved an investigation to create and improve aquatic habitat from Lake Puckaway downstream to the Princeton Dam.

Spy Run, Fort Wayne, IN – The goal of this project is to produce high quality wetlands to restore a portion of those which have been lost to urbanization. Funds in the amount of \$19,183 were expended in FY01 to initiate the Planning and Design Analysis. The local sponsor requested termination of the study in May 2001.

Wolf River, WI – The local sponsor, Menominee Indian Tribe, is seeking assistance from the Corps in removing large woody debris and other solid material from the project site. The removal of this material would result in increased water quality and restoration of habitat within the river corridor. Funds in the amount of \$8,885 were expended in FY01 to initiate the Preliminary Restoration Plan.

Preliminary Restoration Plans – Funds in the amount of \$96,097 were expended in FY01 in the

preparation of Preliminary Restoration Plans for the initial appraisal of the following projects: Bad River Site, WI; Black Mallard Creek, MI; Boardman River (Kids Creek), MI; Carp Lake River, MI; Paw Paw River, MI; Rapids River, MI; Schmidt Creek, MI; South Branch, Galien River, MI; Trail Creek, IN; Lower Rouge, MI; Upper Rouge, MI; Gibraltar, MI; Grand River, Jackson, MI; Huron River, Brownstown Township, MI; Metro Beach, Lake St. Clair, MI; West Lake, Dexter, Township, MI; Paw Paw, Benton Harbor; Quanicassee Wildlife Area, MI; Shiawassee River, State Game Area; Kinnickinnic River, WI; and Wolf River, Keshena, WI.

FLOOD CONTROL

72. CLINTON RIVER SPILLWAY, MI

Location. Clinton River Basin including its tributaries drains an area of 760 square miles in southeastern Michigan and empties into Lake St. Clair.

Existing Project. The project consists of a two-mile long spillway channel connecting the Clinton River with Lake St. Clair and a weir at the upstream end of the project, about 9 miles upstream of the river's mouth, in Mount Clemens, MI. (See Table 21-B for authorizing legislation.)

Local Cooperation. Clinton River Spillway Inter-County Drainage Board operates and maintains the project.

Operations During Fiscal Year. Funds in the amount of \$168,792 were expended in FY01 to complete the contract removal of sediments upstream of the spillway weir. Total cost to end of FY was \$3,494,883.

73. FORT WAYNE METRO AREA, IN

Location. Fort Wayne, which is located in northeastern Indiana in Allen County, is in the Maumee River drainage basin. In all, the Maumee basin covers an area of 6,586 square miles. Of this area, 4,856 square miles are in northwest Ohio, 1,260 are in northeast Indiana and 470 are in southeast Michigan. This basin is one of the largest and most important tributaries in the Great Lakes-St. Lawrence

River system. There are four main tributary streams to the Maumee River: the Auglaize, Tiffin, St. Joseph and St. Marys Rivers. The St. Joseph and Tiffin Rivers originate in the hills of southern Michigan and flows southerly to the Maumee. The St. Marys and Auglaize originate in Ohio and flow northward. In the City of Fort Wayne, the St. Joseph and St. Marys Rivers join to form the headwaters of the Maumee River. From this point, the Maumee flows northeasterly and empties into Lake Erie at Toledo, Ohio. The central business district is located on the south side of the Maumee and the St. Marys Rivers. The St. Joseph River bisects primarily residential areas on the north side of the central business district. While some portions of the central business district are prone to flooding in the immediate vicinity of the St. Marys River, the majority of the business district is sufficiently elevated to avoid flood damages. The residential areas, however, are generally low lying and are prone to frequent flooding.

Existing Project. The Fort Wayne and Vicinity, Indiana, Flood Control Study was authorized by resolution of the Committee on Public Works, House of Representatives on October 12, 1972. The authorization requested that the Corps determine the advisability of providing improvements for flood control and allied purposes at and in the vicinity of Fort Wayne, Indiana. The study authorization resulted in completion of a Final Feasibility Report entitled "Fort Wayne and Vicinity, Indiana Flood Control Study," dated September 1987, and revised in April 1988, which identified and evaluated a number of different alternatives to flood control in the Fort Wayne area. The Final Feasibility Report also contained the "Final Environmental Impact Statement" for this project. Preparation of the General Design Memorandum began in August 1989 and was approved in December 1993. Construction was authorized in Section 101 of the Water Resources Development Act of 1990 (Title 1 Public Law 101-640). This project was a Congressionally added new construction start in FY 1994. The Project Cooperative Agreement (PCA) was executed in August 1994 and construction was initiated in September 1995. The project will provide a 100-year level of flood protection to a large part of the central area of the City of Fort Wayne, Indiana that has experienced numerous flooding events in the past. The project is located along the north side of the St. Marys River, the east and west banks of the St. Joseph River, and the north bank of the Maumee River. Junk Ditch and Spy Run Creek which are tributary to the St. Marys River will also have protection installed or improved along their north and east banks

respectively. The project area has been broken into four (4) segments that provide flood protection to various areas within the project limits. The West Segment is located along the St. Marys River and the Junk Ditch Tributary. The Central Segment is located along the Spy Run Tributary to the St. Marys River, a short section of the St. Marys River itself (at the confluence with the St. Joseph River), and along the west bank of the St. Joseph River. The East-North Segment is located along the east bank of the St. Joseph River and the East-South Segment is located along the north bank of the Maumee River. The total project length is approximately 54,000 feet. The project consists of several types of flood protection improvements. The most common type of flood protection improvements proposed are earth levees. The levees proposed are to have turf or rock protected slopes depending on the available space for their construction. Levees account for approximately 63 percent of the total project length. Concrete floodwalls are proposed in those areas where insufficient space exists to construct levees due to site constraints. Concrete flood walls account for 20 percent of the project length. An additional eight percent of the project length consists of a combination of a ½ Reduced levee and concrete L-Wall. The remaining length is composed of various types of road closures (stoplogs, clay dikes and high curbs), and 3,000 feet in several areas that do not require improvements due to adequate existing surface grades. The fully funded total project cost estimate is \$50,045,000. The Federal cost is \$37,179,000 and the non-Federal cost is \$12,866,000.

Local Cooperation. The non-Federal sponsors for the project are the City of Fort Wayne and Allen County. A Project Cooperation Agreement (PCA) was executed with the Mayor of Fort Wayne and the Allen County Board of Commissioners on 22 August 1994. Under the terms of the PCA, the non-federal sponsors shall contribute a minimum of 25 percent, but not to exceed 50 percent, of the total project costs attributed to flood control purposes. This shall consist of all required lands, easements, rights-of-way and relocations for the project; and a cash contribution equal to a minimum of five percent of the total project flood control cost. The Assistant Secretary of the Army (CW) has approved a credit in the amount of \$1,123,500 under Section 104 of the Water Resources Development Act of 1986. This will be applied to the non-Federal share of the project flood control cost. In addition to the above, the non-federal sponsor shall provide 50 percent of the total project recreation costs, 100 percent of all betterment costs, and shall operate and maintain all works after completion. Cash

contributions totaling \$7,947,221 have been provided through the end of FY 01. Real estate requirements for the East-South Segment were completed on July 27, 1995, East-North Segment on July 19, 1996, Central Segment on November 11, 1997 and the West Segment on April 8, 1999.

Operations During Fiscal Year. FY01 expenditures of \$2,279,415 were made to complete construction for the East-North and Central Segments; and to continue construction for the West Segment. The East-North and Central Segments were transferred to the City of Fort Wayne and Allen County on September 11, 2001, and October 4, 2001, respectively. Of the funds expended, \$672,567 was contributed by the City of Fort Wayne and Allen County. Total cost to end of FY was \$39,610,973.

74. SAGINAW RIVER, MI

Location. Saginaw River Basin including its tributaries, Tittabawassee, Shiawassee, Flint and Cass Rivers, drains an area of 6,260 square miles in the east central part of Michigan and empties into Saginaw Bay, an arm of Lake Huron. Bay City, near mouth of river, and Saginaw, 22 miles upstream from mouth, are on Federally improved deep-draft Saginaw River navigation channel (See Saginaw and Flint Geological quadrangles and NOAA Nautical Chart 14867).

Existing Project. Provides for improvements in Saginaw River Basin for flood control and other purposes: (a) at Sanilac Flats, MI, Middle Branch and South Branch, Cass River, to provide for major drainage improvements by channel improvements on Middle and South Branches, including a short reach of East Branch. This feature of the project for flood control, Saginaw River, MI, authorized by the Flood Control Act of 1958, was deauthorized by the WRDA of 1986;

PL 99-662 - Nov. 17, 1986, 99th Congress, Title X; (b) at Vassar on Cass River, to provide for flood protection of areas on north and south sides of river by channel improvement, levee construction floodwalls, modifications of Moore Drain, and related work at an estimated U.S. cost (Oct. 1984) of \$8,620,000 and non-Federal cost of \$579,000 for construction; (c) at Frankenmuth on Cass River, to provide for flood protection of areas on north side of river by channel improvement, levee construction, and related work, at an estimated U.S. cost (July 1974) of \$410,900 for construction; (d) at Flint on Flint River, to provide for flood protection of areas on both sides

DETROIT, MI, DISTRICT

of main stem of Flint River and its tributaries, Swartz and Thread Creeks by channel improvement, bridge alterations, floodwall and levee construction, and related work, at an estimated U.S. cost (Oct. 1984) of \$18,251,600 and non-Federal cost of \$2,580,000 for construction; provided local interests contribute in cash 1 percent of first cost of project, exclusive of cost of rights-of-ways; (e) at Corunna on Shiawassee River, to provide for flood protection by channel improvement, levee construction, and related work. This feature of the project for flood control, Saginaw River, MI, authorized by the Flood Control Act of 1958, was deauthorized by the WRDA of 1986, PL 99-662 - Nov. 17, 1986, 99th Congress, Title X; (f) at Owosso on Shiawassee River, to provide for flood protection by channel improvement. This feature of the project for flood control, Saginaw River, MI, authorized by the Flood Control Act of 1958, was deauthorized by the WRDA of 1986, PL 99-662 - Nov. 17, 1986, 99th Congress, Title X; (g) at Midland on Tittabawassee River, to provide for flood protection through non-structural (permanent evacuation) measures at an estimated U.S. cost (Apr. 1982) of \$5,125,000 and non-Federal cost of \$1,611,500 for implementation; however, project was reclassified to the "inactive" category on Dec. 15, 1982; (h) at Shiawassee Flats along lower reaches of the four principal tributaries of Saginaw River, to provide for flood protection, including fish and wildlife areas; by channel improvement, levees, lateral reservoirs with control structures and related work at an estimated U.S. cost (Oct. 1984) of \$23,417,500 Federal and non-Federal cost of \$2,705,000 which includes a cash contribution of \$1,237,000; provided local interests contribute in cash 5 percent of cost of rights-of-way for flood control and other work required as local cooperation, and furnish one-half of land required for fish and wildlife areas; provided that the Federal allocation for conservation does not exceed amount obtained by taking 28 percent of project cost for Shiawassee Flats unit and subtracting therefrom one-half cost of lands for conservation; and provided further that before starting work for flood control to Shiawassee Flats, Chief of Engineers and Director, Fish and Wildlife Service, prepare a plan mutually acceptable to Secretary of the Army and Secretary of the Interior for operation of fish and wildlife areas to required degree of controlled storage of flood waters while preserving the maximum fish and wildlife benefits. Total estimated cost for new work, for active portion (1984) is \$50,700,000 Federal and \$1,421,000 to be contributed by local interests. Total estimated cost (1984) to local interests is \$5,870,000.

Local Cooperation. Responsible local interests must make cash contributions as called for above; furnish lands, and rights-of-way, including removal of buildings, for construction; hold the United States free from damage; maintain and operate all works after completion; establish and enforce regulations designed to prevent encroachments in improved channels; and bear expense of constructing highway relocations and highway bridges, alter bridge approaches and existing highway bridge approaches and existing highway bridges (except underpinning and bridge raising), and alter utilities. Required assurances for Flint River at Flint were furnished by city of Flint and accepted by the United States on Nov. 23, 1962. Estimated required cash contribution for Flint (\$56,000) was furnished Feb. 20, 1963. An additional \$117,000 was furnished by the City to cover increased construction costs. Required assurances for Cass River at Frankenmuth were accepted on Sep. 8, 1964. All necessary lands, easements, and rights-of-way have been provided. The Midland City Council adopted a resolution on Jun. 7, 1982, declaring its intent not to sponsor the Flood Control project on the Tittabawassee River at Midland. The Vassar City Council, in a letter dated Jan. 26, 1982, indicated a willingness and capability to provide the assurances of local cooperation for the Vassar Flood Control Project. Saginaw County, in a resolution dated Aug. 11, 1982, indicated a willingness and capability to provide the assurances of local cooperation for the Shiawassee Flats Flood Control Project.

Operations During Fiscal Year. Maintenance: Funds in the amount of \$112,580 were expended in FY01 to complete work on the FY99 inflatable dam replacement contract. Construction was substantially complete on 24 September 2001 with contract cost in the amount of \$59,455. The operation and maintenance responsibility will be transferred to the City of Flint in FY02.

The Water Resources Development Act of 1996 (Public Law 104-303), Section 329, Saginaw River, Michigan @ modified Section 203 of the Flood Control Act of 1958 (PL 85-500) to include as part of the Project the design and construction of an inflatable dam. The Energy and Water Development Act of 1998 (Public Law 105-62) provided \$875,000 under the Operation & Maintenance, General appropriation for the preservation, operation, maintenance, and care of the Project, to replace the inflatable dam.

Total cost of the existing project to the end of the FY was \$31,358,161, of which \$24,928,359 was for new

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

work (includes \$173,000 contributed funds) and \$6,429,802 for maintenance.

75. SEBEWAING RIVER, MI

Location. Sebewaing River drains an area of 105 square miles in Huron and Tuscola Counties on the westerly side of Thumb area of Lower Peninsula of Michigan and discharges into Saginaw Bay, an arm of Lake Huron, 20 miles northeast from mouth of Saginaw River. Village of Sebewaing is near mouth of River. (See NOAA Nautical Chart 14863.)

Existing Project. Enlarging present channel of Sebewaing River through village of Sebewaing, MI, to a capacity of 7,500 cubic feet per second from junction of Columbia and State drains to a point 4,500 feet lakeward from railroad bridge near mouth; altering railroad bridge and three highway bridges to permit free passage of ice; and removal of present dike on south side of channel lakeward from railroad bridge. Project is designed to provide protection for village of Sebewaing from floods with a frequency of once in 15 years and with a magnitude greater than the maximum flood of record. (See Table 21-B for authorizing legislation.)

Local Cooperation. Complied with except for furnishing easements and rights-of-way for removal of remaining portion of dike on south side of channel lakeward from railroad bridge.

Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces cost \$8,591. Total costs to the end of FY were \$829,690 of which \$365,642 was for new work and \$464,048 for maintenance.

76. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

<u>NAME OF PROJECT</u>	<u>DATE OF INSPECTION</u>
Paw Paw Lake & River, MI	Oct 2000
Fort Wayne, IN.....	Jun 2001
Red Run, Clinton Spillway, MI.....	Jun 2001
Frankenmuth, MI.....	Jul 2001
Rouge River, MI.....	Aug 2001

Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces and contract cost \$264,702.

Total cost to the end of FY was \$3,610,541.

77. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 21-E.

78. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency Flood Control Activities, Flood Fighting (Public Law 84-99 and PL 93-288 and Antecedent Legislation).

<u>Project and Location</u>	<u>FY Cost for Sep. 30, 2001</u>
Disaster Preparedness	\$194,586
Emergency Operations.....	\$2,304
Rehabilitation.....	\$99
Advance Measures.....	\$1,301,125

Flood control activities pursuant to Section 205 of the 1948 Flood Control Act, as amended.

Cass River, Spaulding Township, MI – By letter dated December 21, 1998, the Township of Spaulding formally requested the Corps of Engineers' assistance under Section 205 to implement a flood relief solution for the purpose of providing flood protection to the community of Spaulding Township, Saginaw County, MI. Funds in the amount of \$4,908 were expended in FY01 to continue the feasibility phase.

Detroit Beach, Lake Erie, Frenchtown Township, MI – By letter dated October 27, 1999, the Township of Frenchtown formally requested the Corps of Engineers' assistance under Section 205 to implement a solution for the purpose of improving flood protection to the community of Frenchtown Township, Monroe County, MI. Funds in the amount of \$54,550 were expended in FY01 to continue the feasibility analysis.

Menomonee River, Milwaukee County, WI - By letter dated April 30, 1999, the Milwaukee Metropolitan Sewerage District (MMSD) requested

DETROIT, MI, DISTRICT

the Corps of Engineers' assistance under the Section 205 authority to investigate non-structural alternatives for the purpose of reducing flooding in the Menominee River. The feasibility phase continued this FY at a cost of \$20,194. The investigation of alternatives determined that the locally preferred plan was not economically justified on a Federal level, therefore, MMSD by letter dated May 16, 2001, requested that the study be terminated.

Oak Creek, Milwaukee County, WI - By letter dated April 30, 1999, the Milwaukee Metropolitan Sewerage District (MMSD) requested the Corps of Engineers' assistance under the Section 205 authority to investigate non-structural alternatives for the purpose of reducing flooding in the Oak Creek Watershed. The feasibility phase continued this FY at a cost of \$17,983. The investigation of alternatives determined that only one single private property could be considered for the Federal study. Because protection of the single property would not benefit multiple property owners, the MMSD by letter dated July 24, 2001, requested termination of the study.

Root River, Milwaukee County, WI - By letter dated April 30, 1999, the Milwaukee Metropolitan Sewerage District (MMSD) requested the Corps of Engineers' assistance under the Section 205 authority to investigate non-structural alternatives for the purpose of reducing flooding in the Root River. The feasibility phase continued this FY at a cost of \$35,674.

Spy Run Creek, Fort Wayne, IN - The project area is located in the vicinity of Fort Wayne, Allen County, IN. A flooding problem exists along the Spy Run Creek. The City of Fort Wayne requested that an expedited reconnaissance study be initiated to determine if the creation of wetlands for upland retention of stormwater may be feasible alternative. Habitat creation would also be a benefit from the wetlands. A 905(b) Analysis and Reconnaissance Report were completed in September 2000. Funds in the amount of \$34,200 were expended this FY to initiate a Section 205 Feasibility Study. The local sponsor requested termination of the study in May 2001.

Underwood Creek, Village of Elm Grove, WI - By letter dated April 4, 2000, the Village of Elm Grove requested the Corps of Engineers' assistance under the Section 205 authority to investigate structural and non-structural alternatives for the purpose of reducing flood damages in the Village.

Funds in the amount of \$59,583 were expended in FY01 to continue the feasibility phase.

Flood control activities pursuant to Section 208 of the 1954 Flood Control Act. Snagging and clearing activities pursuant to Section 208 of the Flood Control Act of 1954, as amended. None.

Aquatic plant control activities pursuant to Section 302 of the River and Harbor Act of 1965 (PL89-298). None.

Houghton Lake, Roscommon County, MI - Funds in the amount of \$73,767 were expended in accordance with P.L. 106-554 and in H12264, Chapter 5, Construction General, for the Corps to study the Eurasian watermilfoil problem at Houghton Lake. The Corps created a report listing potential short and long-term management options to control Eurasian watermilfoil in Houghton Lake.

79. SURVEILLANCE OF NORTHERN BOUNDARY WATERS AND INTERNATIONAL WATER STUDIES

Field Operations. As a continuing and ongoing mission, the Detroit District conducts hydraulic flow measurements throughout the Great Lakes Connecting Channels and St. Lawrence River system. This capability is unique among the Corps Districts (and other federal agencies) on the Great Lakes. During FY2001, the Detroit District continued gathering hydraulic using the ADCP (Acoustic Doppler Current Profiler) instrumentation at several sections on the upper and lower Detroit River, the St. Clair River and the Niagara River. These hydraulic data sets are currently being used to develop two-dimensional flow models of the river systems, and to help refine the flow retardation estimates for weed conditions through the growing season. Conventional and ADCP discharge measurements were made on the lower Niagara River to verify the rating curve for the flow out of the Maid-of-the-Mist Pool below Niagara Falls. Conventional discharge measurements were also made on the Welland Canal to verify the rating equations for the Welland Canal supply weir.

As an ongoing mission, during the winter months the District monitors the extent of ice in the St. Mary's, St.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Clair, and Detroit Rivers. Water levels are monitored continuously at key gages in these rivers to detect possible ice jams and potential flooding. This information can be used to provide advance warning to area residents and to trigger emergency actions by the Corps and other governmental agencies, including the National Weather Service and the Coast Guard. Currently, data are obtained through phone interrogation of these gages or from a satellite data relay to the District's water management data system and remote laptop personal computers. These systems provide water level information to the District office within minutes of data collection.

International Activities. The Detroit District has successfully supported the International Joint Commission (IJC) for many years. This has included numerous engineering and scientific assignments supporting the Commission's boards of control, working committees, and study boards.

The following activities were conducted by the Detroit District, specifically for the IJC Boards and Committees:

a. Semi-Annual Meetings. Members of the Detroit District staff attended the semi-annual meetings of the three Great Lakes Boards of Control. They also attended the spring and fall appearances of the Boards before the IJC, in Washington, D.C. in April 2001, and the fall appearances, in Montreal, Quebec in September 2001.

b. International Lake Superior Board of Control. The Detroit District Engineer is the United States Regulation Representative of this Board. In support of the U.S. Section of the Board, the District provided monthly Lake Superior outflow recommendations based upon a review of the hydrologic factors, which influence the future regulation of Lake Superior. These recommendations were based upon the use of probability forecasts of water supplies routed through the lakes using the approved operating plan, Plan 1977-A. Plan 1977-A has been in operational use since June 1990. The District's program to evaluate the hydraulic rating of the Compensating Works in the St. Mary's River continued in FY2001. During FY2001 flow measurements were conducted in the Edison Sault Electric Company power canals at Sault Ste. Marie, MI as part of an ongoing program to verify the power plant rating.

The Board is required by the IJC to hold at least one public meeting each year to inform them of the

Board's activities to gain feedback regarding their work. As such, the District participated in the Board's FY2001 annual meeting held in Port Severn, Ontario in June 2001. The District also disseminates extensive Board information to the public, the media and user interests via news releases, letters and by maintaining the Board's web page.

Starting in August 2001 the District participated with a binational study team, formed by the IJC, in the development of a Plan of Study to review the existing Orders of Approval, the current regulation plan (Plan 1977-A) and various beneficial uses not currently being considered.

c. International Niagara Board of Control, International Niagara Working Committee, and International Niagara Committee. The District provides direct technical support and consulting engineering services to this Board and its Committees. The Chief of the Great Lakes Hydraulics and Hydrology Office is a member of the Niagara Working Committee. Under the auspices of the Committee, the Detroit District, with Canada, computes, coordinates, and publishes the monthly flows in the Niagara River.

During FY2001, the Detroit District and the Water Survey of Canada conducted a series of discharge measurements in the lower Niagara River at the Cableway Section. This is part of a continuing effort to verify the Ashland Avenue gage equations. The Ashland Avenue equations rate the flow out of the Maid-of-the-Mist Pool, which encompasses the total flow over the American and Canadian Falls, to ensure that the hydropower plants operate within the terms of the Niagara Treaty. Information to date indicates that the existing equations are adequate to represent the present hydraulic regime over the Niagara Falls. Discharge measurements for the Ashland Avenue rating curve are scheduled every three years. The next series of measurements are scheduled for FY2004.

In FY2001 discharge measurements were also made in the Welland Canal. These are part of the continuing effort to verify the ratings for the Welland Canal supply weir. Data collected to date indicates that the present equations may be underestimating the flow. Revision of the ratings is being considered. The next measurements at this section are scheduled for FY2004, in accordance with the three-year schedule.

Due to the dynamic nature of the Niagara River at the Niagara Falls, the District is also involved with periodic verification of the rating curve for the flow in

DETROIT, MI, DISTRICT

the American Falls Channel, and the Niagara River flow out of Lake Erie. Discharge measurements are made in the American Falls Channel on a five-year schedule. The last set of measurements were made in 2000, and the next is scheduled for 2005. Discharge measurements made at the International Railway Bridge Section are used in verifying the rating equations for the flow out of Lake Erie. The rating equation based on the Buffalo gage was recently revised based on measurements collected at this section since 1974. Measurements are made at the International Railway Bridge Section on a three-year schedule. The last set of measurements was made in 2000, and the next is scheduled for 2003.

d. Lake Michigan Potential Damages Study (LMPDS). In response to one of the recommendations from the IJC's 1993 Levels Reference Study, in FY2001 the Detroit District continued a potential damage study of the Lake Michigan shoreline. The ultimate goal of this study is to create a modeling procedure and engineering/management tool for estimating economic effects of lake level changes and related social, environmental, and cultural impacts. The LMPDS modeling approaches are expected to be the framework for economic assessments for each of the other Great Lakes. The LMPDS is also intended to be a forum for concerted information system development between international, federal, state, county, township, and municipal governance about the resource base that is commonly shared.

In order to focus modeling and other FY2001 activities and to ensure the methods developed are appropriate for application to the whole lake, detailed analysis continued on five prototype counties. These include Ottawa and Allegan counties in Michigan, and Ozaukee, Sheboygan, and Manitowoc counties in Wisconsin. They were selected because they contain a number of the LMPDS site-specific study areas being examined. They also have wealth of data and information available from other initiatives being carried out by state agencies and academic institutions.

The study is continuing into FY2002, with emphasis on completing economic impact estimates for the five prototype counties. Efforts in FY2002 will also be expanded to develop a prioritization of other areas on the remaining upper Great Lakes (Lakes Superior, Huron, St. Clair, and Erie) that are susceptible to significant economic damages due to extreme water levels. Future investigations on other areas of the upper great Lakes would use the methods, tools, and

techniques developed in the LMPDS over the past five years.

Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data. The Chief of the Great Lakes Hydraulics and Hydrology Office is the U.S. Secretary to this Committee. Other Office personnel also hold membership on the three subcommittees: the Vertical Control-Water Levels, Hydraulics, and Hydrology.

The District continued its support of Committee operations pertaining to the coordination of basic hydraulic and hydrologic data with Canada. District efforts have also continued to closely coordinate the formats of the U.S. and Canadian water level bulletins in order to avoid confusion and to better inform the public. In addition, the District continued working with NOAA's Great Lakes Environmental Research Lab (GLERL) with regard to improving the computational procedures currently employed in the Great Lakes 6-month water level forecast.

The District is also discussed improvements to its bi-weekly Connecting Channel Depths forecast. The desired product would be a web-based weekly forecast demonstrating the least, greatest, and mean channel depths at various points on the St. Mary's, St. Clair, and Detroit Rivers, as well as the St. Lawrence River system.

Water Management Data System. In FY2001, the Detroit District continued to provide an extensive variety of water management products, for the entire Great Lakes system, based on the water level gage network, on its Internet web pages. Weather information and meteorological data are also received and processed within the District and available on the Internet. The Detroit District has 29 active data collection platforms (DCPs) and plans to upgrade and possibly expand the network, based upon an on-going review of its water level gaging program. In FY2001, the Detroit District implemented the Corps of Engineers Water Management Software (CEWMS) suite with its initial prototype development being on placed on modernizing the Lake Winnebago watershed outflow management.

Great Lakes Information Management. In FY2001, the Detroit District continues the development of a Geographic Information System (GIS) for the U.S. portion of the Great Lakes. The GIS contains multiple information layers on the physiographic, economic, sociologic, environmental, and hydrologic characteristics of the Great Lakes

region. The GIS is designed to create a corporate database to support various District operations and studies. The data coverages include but are not limited to digital elevation models for bathymetric and topographic mapping, digital orthophotography, coastal zone planimetric mapping and land use updates.

Great Lakes Hydrology. Water supply forecasts are used routinely by the Great Lakes Hydraulics and Hydrology Office in forecasting water levels and regulating the outflows from Lakes Superior and Ontario. Studies to improve the existing Great Lakes water level forecasting system, including investigations into the factors affecting the Great Lakes water balance relationship (i.e., runoff, over-water precipitation, evaporation, ice retardation, etc.) and use of real-time hydrologic data such as the new National Weather Service doppler radar networks were continued during FY 2001.

Great Lakes Water Levels. The Great Lakes Hydraulics and Hydrology Office continued to make routine short-term (7- and 15-day) and long-term (six months) Great Lakes still water level forecasts. These forecasts are distributed in the form of weekly, bimonthly and monthly news releases and bulletins. The Monthly Bulletin of Lake Levels for the Great Lakes, containing a six-month projection of Great Lakes water levels, has a circulation of about 9,000 copies per month. Included with the monthly bulletin on a quarterly basis is an informational enclosure entitled Great Lakes Update, which covers various topics of interest pertaining to the water resource management of the Great Lakes.

With water levels on the Great Lakes being well below average during FY 2001 and continuing into FY 2002, media and public attention has been high. Office personnel provide essential expertise regarding water level forecasts, recorded lake levels, and the potential impacts of these water levels on interested parties. These parties include members of Congress, state and local officials, news media, navigation and power interests, property owners, and recreational boaters. Upon request, water level information are supplied to the public via the District's web pages, telephonic and written responses to inquiries, presentations to various interest groups, and interviews with the news media.

The Detroit District coauthored a comprehensive booklet on the Great Lakes with the Great Lakes Commission. This publication entitled "Living with the Lakes", has been distributed to over 48,000

recipients since its initial printing in 2000. The Office also furnished the public with publications on dredging and recreational boating on the Great Lakes.

The total costs for FY2001 under the Surveillance of Northern Boundary Waters was \$2,811,218 and under the International Water Studies, \$305,722.

MULTIPLE-PURPOSE PROJECTS INCLUDING POWER

80. ST. MARYS RIVER, MI

Location. A Great Lakes connecting channel about 63 miles long, flows southeasterly between State of Michigan and Province of Ontario, Canada, from eastern end of Lake Superior into northern end of Lake Huron. (See NOAA Nautical Charts 14882, 14883, and 14884.) At Sault Ste. Marie, MI, about 14 miles downstream from Lake Superior, there are four parallel locks and a hydroelectric powerplant.

Previous Project. For details see page 1955, Annual Report for 1915; and page 1529, Annual Report for 1938.

Existing Project. Channels permitting 25.5-foot draft navigation in St. Marys River and Lake Superior and Lake Huron approaches thereto; constructing and operating four locks and two canals; constructing an electric plant of 14,000 kilowatt capacity (45,000 kilowatt ultimate capacity) constructing anchorage areas in river above and below locks; and constructing various other works in conjunction with project. Subsequently, in 1932, the Unit 10 powerhouse was installed raising the capacity to 18,400 kilowatts (45,000 ultimate capacity). Original State Locks were operated and maintained under permanent indefinite appropriation from Jun. 9, 1881, to Nov. 2, 1886, after which they were destroyed by excavation for the Poe Lock in 1896. Weitzel Lock, destroyed in 1942 by excavation for the MacArthur Lock, was operated and maintained under the same appropriation from Sep. 1, 1881, to Jun. 30, 1935. Poe Lock was operated and maintained under the same appropriation from Aug. 3, 1896, Davis Lock from Oct. 21, 1914, and Sabin Lock from Sep. 18, 1919, to end of FY 1935. The 1,200-foot by 110-foot new Poe Lock was authorized in 1962 and put into operation in 1968. Details of existing project are set forth in Table 21-F.

Project depths are referred to low water datum corresponding to sloping surface of river as follows:

DETROIT, MI, DISTRICT

Above locks: When water surface of Lake Superior is at elevation 601.1 feet and at upstream side of locks is 600.6 feet above mean water level at Rimouski, Quebec, IGLD 1985. Below locks: When water surface at downstream side of locks is at elevation 578.4 feet and Lake Huron is 577.5 feet above mean water level at Rimouski, Quebec, IGLD 1985. Estimated (1974) cost for new work is \$163,087,000. (See Table 21-B for authorizing legislation.)

The WRDA of 1986 authorized construction of a second lock 1,294 feet in length, 115 feet in width, and 32 feet in depth, adjacent to the existing lock. The replacement lock is to be located in the North Canal of the St. Marys Falls Canal at Sault Ste. Marie, MI, on the site of the existing Davis and Sabin Locks. Material removed during construction of the replacement lock will be placed on the Northwest Pier to serve as a windbreak for downbound vessels approaching the lock. Estimated cost (Oct. 90) is \$174,200,000 Federal and \$93,800,000 non-Federal.

Local Cooperation. Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as follows:

(a) Provide without cost to the United States all lands, easements, and rights-of-way necessary for implementation and later maintenance of the proposed project, and for aids to navigation upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and later disposal of dredged/demolition material and including necessary retaining dikes, bulkheads, and embankments therefor, or the costs of such retaining works;

(b) Hold and save the United States free from damages due to the implementation and maintenance of the project, not including damages due to the fault or negligence of the United States or its contractors;

(c) Accomplish without cost to the United States such alterations and relocations of pipelines, powerlines, cables, sewer, water supply, drainage, and other utilities, structures, and improvements made necessary by the project. (Any such costs of the items on Federal property at the locks, would be part of the total construction cost and not separable local sponsor cost.);

(d) Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently

estimated at \$67,000,000. The estimated cash contribution of \$67,000,000 to be paid in lump sum prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined;

(e) Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at \$26,800,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution for lands, easements, rights-of-way, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost; and

(f) Any construction needed to prevent/mitigate for erosion or shoaling attributed to the lock would be cost shared in the same proportion as the project.

Terminal Facilities. This improvement serves through commerce between Lake Superior and lower lakes and has not materially influenced terminal facilities at localities along its route. Three piers at Sault Ste. Marie receive coal and petroleum products. Limestone is shipped from a pier at Drummond Island. Vessel refueling stations are at Lime Island and village of DeTour; they receive coal and petroleum products. Present terminals satisfy current traffic requirements.

Operations During Fiscal Year. Operations, maintenance, and care of locks: Two canals and three locks were operated (the fourth lock, Sabin, was in caretaker status) as required. Necessary repairs and improvements were made thereto and to appurtenant structures and equipment. Canals were open to navigation 297 days during the period 1 October 2000 through 30 September 2001. A total of 8,683 vessels, aggregating 80,220,977 short tons of freight and 110,635 passengers passed through the MacArthur and Poe Locks. (The Davis Lock was not used in FY01.) Total cost for operation, maintenance, and care of the locks during the FY was \$12,661,215. Total cost includes \$4,718,112 for completion of the FY99 MacArthur Lock (Phase II) contract repairs

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

with \$72,555 for engineering and design during construction, and \$237,549 for supervision and administration of the contract.

Powerhouse and equipment: A total of 166,435,700 kilowatt-hours of power was generated this FY. Income from the sale of power, sent to the U.S. Treasury, amounted to \$1,320,311. Total cost of operation and maintenance for two hydroelectric powerhouses during the FY was \$2,269,596. Total cost includes \$369,891 for continuation of rehabilitation of governor, excitation, fire suppression system, and installation contracts, \$165,000 for engineering and design during construction, and \$106,445 for supervision and administration of the contracts. Engineering and design to replace the existing horizontal roof on the main power plant and the boathouse was completed at a cost of \$34,926. A contract for this work was awarded this FY in the amount of \$460,298. The contract was 85% complete at the end of the FY at a cost of \$390,318. Supervision and administration of the contract cost \$35,271. Engineering and design to sandblast and paint the head and tailgates continued at a cost of \$49,345; and replacement of the main power plant piping was initiated at a cost of \$107,197.

Other operation and care items: Buildings and grounds were operated and maintained, condition surveys, operations studies, environmental activities, real estate, and miscellaneous inspections and reports cost \$2,591,737, which includes a custodial, snow removal and grounds upkeep contract for \$333,188 and a service contract for security measures for \$651,691.

Channels and canals: St. Marys River channels and canal approach depths were surveyed by sweeping. Removal of shoals in the St. Marys River channels and canal approaches performed by hired labor using the U.S. Derrickbarge NICOLET and the U.S. Cranebarge HARVEY cost \$2,366,639. A contract was awarded this FY in the amount of \$2,601,723 to deepen the federal channel in the Upper St. Marys River by one foot. The contract will excavate approximately 29,000 cubic yards of material from the Point Au Pins Course, 42,000 cubic yards from the Vidal Shoals, and 13,000 cubic yards from the lock approach. At the end of the FY the contract was 52% complete at a cost of \$1,361,000, use of the U.S. Cranebarge HARVEY cost \$14,778, engineering and design cost \$39,060, supervision and administration of the contract cost \$150,330. Engineering and design for replacement of canal feeders continued at a cost of \$59,887; and repair of the gate seals at the

compensating works was initiated at a cost of \$14,132. An environmental and engineering assessment for deepening the Lower St. Marys River from the south approach to the locks down to the northerly entrance to the Rock Cut (Little Rapids Cut) was initiated at a cost of \$3,752.

Other miscellaneous items: The FY99 contract for rehabilitation of the rest of the Administration and Davis buildings was completed at a cost of \$40,127. Supervision and administration of the contract cost \$23,113. The FY99 contract for repair of armor old disposal sites was 29% complete at the end of the FY at a cost of \$51,585, engineering and design during construction cost \$6,709, and supervision and administration of the contract cost \$34,258. Supervision and administration to closeout FY00 contract for major repair of the Rock Cut, East Guide Wall, completed last FY cost \$6,776. Engineering and design for installation of fire alarms and enunciators continued at a cost of \$100,727, and repairs of the West Center Piers at a cost of \$69,881.

Recreational facilities: Information center, visitors center, comfort stations, park fountain, and observation and overlook platforms were operated and maintained at a cost of \$215,593 which includes a custodial contract for the Information Center. Visitors entering the Soo Locks Visitors Center numbered 431,991. Visitors to the observation platforms overlooking the locks numbered 411,981. Total visitors to the Soo Locks Park numbered 560,294. A grand total of 672,430 people (includes tour boat visitors of 110,635) visited the Soo Locks.

Total project costs in FY 01 amounted to \$22,080,895.

Project in effect prior to modification of March 21, 1956, is complete and work authorized by 1956 modification to provide a safe draft of 25.5 feet for both upbound and downbound traffic is also complete. Public Works Acceleration Funds used for maintenance were \$118,000. Total cost of the existing project to end of FY was \$574,389,107, of which \$160,657,071 was for new work and \$413,732,036 for maintenance (includes \$340,400 contributed funds).

GENERAL INVESTIGATIONS

81. SURVEYS

FY01 funds in the amount of \$87 were expended to continue the Section 216 restudy of Federal interest for Fox River, WI.

FY01 funds in the amount of \$536,328, \$1,763, \$83,939, \$99,511, \$85,409, \$91,471, \$49,755 were expended on Great Lakes Navigation System, MI; St. Joseph River & Spy Run Creek, IN Belle Isle Shoreline Detroit, MI; John Glen Great Lakes Basin Program MI; Detroit River Sewals MI; Detroit River Master Plan MI and Saxon Harbor, WI respectively for reconnaissance studies; and \$28,870, \$70,115, \$10,512, \$21,261, \$13,693, and \$95,260 were expended on Detroit River, MI; Fox River, WI; Kalamazoo, MI; Muskegon Lake, MI; White Lake, MI; and St. Clair River and Lake St. Clair, MI respectively for watershed/ecosystem reconnaissance studies.

Coordination Studies with other Agencies include: Special Investigations, \$38,845 which includes engineering and technical assistance given to local citizens because of fluctuating lake levels of the Great Lakes; FERC, \$4,990; and Interagency Water Resources Development, \$8,117; North American Water Fowl Management Planning, \$2,405; National Estuary Studies, \$4,089; and Cooperation with other Water Resource agencies, \$2,268.

Great Lakes Remedial Action, \$289,420; and Section 22, Planning Assistance to States and Tribes: Federal amount shown, studies cost shared equally with partner include: Sylvan Lake, IN - \$90,528; Fort Wayne, IN - \$21,256; State Flood Plain Mapping, MI - \$1,996; Michigan State Park Orthos - \$42,636; Isabella County, MI - \$1,584; Vassar, MI - \$30,300; Kalamazoo Co., MI - \$2,087; Dearborn Heights, MI - \$526; Michigan CUPPAD GIS - \$2,828; Allegan County - MI \$4,500; Flint Dam Evaluation, MI - \$1,009; Keweenaw Stamp Sand, MI - \$19,348; City of Taylor, MI - \$17,000; Muskegon County, MI - \$64,970; Three Rivers GIS, MI - \$7,000; Big Muskego Lake, WI - \$616; Milwaukee County, WI - \$3,952; Superior Erosion, WI - \$1,089; Calumet Co., WI GIS - \$19,164; Menominee Wolf River, WI - \$22,465; Oneida Nation, WI - \$120,356; Oneida Nation Watershed - \$909; Bad River Tribe, WI Sea Lamprey Study - \$1,246; Bay Mills Tribe, WI Cultural Study - \$1,110; Grand Portage Tribe - \$11,678; Planning Assistance to States Negotiation Funds, MI - \$5,927 and IN - \$75.

82. PRECONSTRUCTION ENGINEERING AND DESIGN

Great Lakes Connecting Channels and Harbors, Replacement Lock

Funds in the amount of \$1,145,459 were expended in FY01 on preconstruction engineering and design work activities.

The project, as authorized in the WRDA of 1986 and the WRDA of 1990, calls for constructing a second lock able to accommodate the largest vessels engaged in Great Lakes commerce. The authorized dimensions are 1,294 feet in length, 115 feet in width, and 32 feet in depth. The authorized cost (1985) is \$227,428,000. The new lock would replace two existing locks that are only 80 feet in width and 23 feet in depth. The project had not been funded earlier due to lack of a local sponsor. The WRDA of 1996 eased the cost-sharing requirements for a non-Federal sponsor. Given the delay in initiating preconstruction engineering and design, the initial work effort is preparing a limited re-evaluation report to assure that the project remains economically justified.

Upper St. Marys River, MI and Canada

The project is authorized in Section 372 of the Water Resources Development Act of 1999 (Public Law 106-53) and provides an additional foot of overdraft between Point Louise Turn and the Locks, Sault Sainte Marie, Michigan and Canada, consistent with the channels upstream of Point Louise Turn. The modifications will be carried out as operation and maintenance to improve navigation safety. This modification was analyzed for reasonableness and safety; and a model study was completed that confirmed that the proposed channel widths are safe for two-way traffic. Funds in the amount of \$39,388 were expended in FY01 to complete plans and specifications. A construction contract for channel deepening was awarded this FY under operation and maintenance.

83. COLLECTION AND STUDY OF BASIC DATA

Flood Plain Management Services. FY01 Expenditures under the Flood Plain Management Services Program: FPMS Unit - \$103,719; Technical Services - \$62,311; National Flood Proofing Committee - \$4,852; Quick Responses - \$4,827;

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Special Study-ST Vrain River Colorado FPI - \$369; St. Louis County, Minnesota - \$435; Ann Arbor, Michigan - \$775; DNR HEC-HMS Workshop in Wisconsin - \$14; HEC-RAS Workshop in Wisconsin - \$1,452, Advanced HEC-RAS Workshop in Wisconsin - \$17,000; Advanced HEC-RAS Workshop in Michigan - \$17,000; Advanced HEC-RAS in Indiana - \$17,000; Special Study Chassel, Michigan - \$3,022; Special Study Flood Plain, Rabbit River, Michigan - \$59,929; Special Study Flood Plain, St. Louis County, Minnesota - \$2,561; Special Study NE Minnesota (Tiescher Creek) - \$14,216.

Flood Insurance Studies. FY01 ongoing Flood Insurance Study expenditures at Macomb, Wayne, and Kent Counties, Michigan were \$51,296, \$23,064 and \$60,930, respectively. In addition, \$24,425 was expended on a FEMA LMMP study in Oconto, Wisconsin.

There was no Federal Emergency Management Agency's Community Assistance Program study in FY01.

In FY01, Hydrologic Studies cost \$4,064, and International Water Studies, \$44,909.

DETROIT, MI, DISTRICT1

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
1.	Algoma Harbor, WI	New Work					
		Approp.	0	0	0	0	292,010 ¹
		Cost	0	0	0	0	292,010 ¹
		Maintenance					
		Approp.	27,946	1,307	79,853	714	1,699,033
		Cost	27,946	1,307	79,853	620	1,698,939
2.	Alpena Harbor, MI	New Work					
		Approp.	0	0	0	0	337,394 ²
		Cost	0	0	0	0	337,394 ²
		Maintenance					
		Approp.	52,238	75,900	761,019	81,463	2,042,144
		Cost	52,238	75,865	761,054	81,404	2,042,085
3.	Arcadia Harbor, MI	New Work					
		Approp.	0	0	0	0	0
		Cost	0	0	0	0	0
		Maintenance					
		Approp.	244,900	93,400	80,802	95,817	5,394,948
		Cost	251,196	93,377	80,832	95,799	5,394,891
4.	Ashland Harbor, WI	New Work					
		Approp.	0	0	0	0	1,695,645
		Cost	0	0	0	0	1,695,645
		Maintenance					
		Approp.	(8,213)	62,300	135,371	7,629	4,395,498
		Cost	1,269	62,045	135,677	7,601	4,395,470
5.	Au Sable Harbor, MI	New Work					
		Approp.	0	0	0	0	193,376 ³
		Cost	0	0	0	0	193,376 ³
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	16,400
		Cost	0	0	0	0	16,400
		Maintenance					
		Approp.	6,884	9,989	8,581	270,800	3,170,125
		Cost	9,459	9,989	8,581	270,758	3,170,083
6.	Bay Port Harbor, MI	New Work					
		Approp.	0	0	0	0	93,597
		Cost	0	0	0	0	93,597
6.	Bay Port Harbor, MI (Continued)	Maintenance					
		Approp.	4,421	6,232	9,173	102,000	566,143 ⁴
		Cost	4,421	6,232	9,173	101,678	565,821 ⁴

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
		Maintenance					
		Contrib.	0	0	0	0	137,399
		Cost	0	0	0	0	137,399
7.	Big Suamico River, WI	New Work					
		Approp.	0	0	0	0	20,243
		Cost	0	0	0	0	20,243
		Maintenance					
		Approp.	6,276	5,913	127,246	124,100	1,475,352
		Cost	6,276	5,913	127,183	124,078	1,475,268
8.	Black River Harbor, MI (P.H.)	New Work					
		Approp.	0	0	0	0	480,244 ⁵
		Cost	0	0	0	0	480,244 ⁵
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	349,921
		Cost	0	0	0	0	349,921
		Maintenance					
		Approp.	4,765	7,349	47,797	33,577	1,571,865 ⁶
		Cost	5,012	7,349	47,479	33,895	1,571,865 ⁶
9.	Black River Harbor, MI (U.P.)	New Work					
		Approp.	0	0	0	0	383,350 ⁷
		Cost	0	0	0	0	383,350 ⁷
		Maintenance					
		Approp.	1,357	2,206	5,632	112,500	1,127,539
		Cost	1,627	2,206	5,562	112,473	1,127,442
10.	Bolles Harbor, MI	New Work					
		Approp.	0	0	0	0	217,916
		Cost	0	0	0	0	217,916
		New Work					
		Contrib.	0	0	0	0	255,000
		Cost	0	0	0	0	255,000
		Maintenance					
		Approp.	9,463	8,488	4,097	262,899	3,910,839
		Cost	9,463	8,488	4,097	262,897	3,910,837
11.	Cedar River Harbor, MI	New Work					
		Approp.	0	0	0	0	408,000
		Cost	0	0	0	0	408,000
		Maintenance					
		Approp.	684,000	1,798,000	637,000	144,688	3,386,687
		Cost	374,769	2,078,423	222,725	545,757	3,344,247
12.	Charlevoix Harbor, MI	New Work					
		Approp.	0	0	0	0	180,623
		Cost	0	0	0	0	180,623

DETROIT, MI, DISTRICT1

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
		Maintenance					
		Approp.	372,700	151,100	87,730	170,746	10,761,914
		Cost	375,119	151,195	87,649	170,767	10,761,736
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	1,129,396
		Cost	0	0	0	0	1,129,396
13.	Clinton River, MI	New Work					
		Approp.	0	0	0	0	260,046 ⁸
		Cost	0	0	0	0	60,046 ⁸
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	289,752 ⁹
		Cost	0	0	0	0	289,752 ⁹
		Maintenance					
		Approp.	10,089	11,329	106,496	716,200	8,274,370
		Cost	26,384	11,234	106,591	715,486	8,273,656
14.	Cornucopia Harbor, WI	New Work					
		Approp.	0	0	0	0	462,653
		Cost	0	0	0	0	462,653
		Maintenance					
		Approp.	(8,266)	23,332	14,823	238,756	1,457,127
		Cost	1,559	23,304	14,739	238,572	1,456,830
15.	Detroit River, MI	New Work					
		Approp.	0	0	0	0	76,877,357 ¹⁰
		Cost	0	0	0	0	76,877,357 ¹⁰
		Maintenance					
		Approp.	2,527,500	2,436,600	3,408,297	3,017,964	172,796,846 ¹¹
		Cost	2,588,228	2,437,212	3,381,961	3,020,417	172,772,503 ¹¹
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	361,235
		Cost	0	0	0	0	361,235
16.	Duluth-Superior Harbor, MN & WI	New Work					
		Approp.	0	0	0	0	16,894,658 ¹²
		Cost	0	0	0	0	16,894,658 ¹²
		New Work					
		Contrib.	0	0	0	0	331,685
		Cost	0	0	0	0	331,685
16.	Duluth-Superior Harbor MN&WI (Continued)	Maintenance					
		Approp.	4,157,000	2,857,780	2,333,867	2,321,781	82,051,121 ¹³
		Cost	4,158,386	2,905,406	2,330,540	2,312,629	82,032,733 ¹³

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	11,555,410
		Cost	0	0	0	0	11,555,410
17.	Fox River, WI	New Work					
		Approp.	0	0	0	0	3,753,334 ¹⁴
		Cost	0	0	0	0	3,753,334 ¹⁴
		Maintenance					
		Approp.	2,740,802	3,112,700	2,254,855	4,394,807	68,672,890 ^{15,16}
		Cost	2,968,374	3,191,248	2,196,546	4,433,137	68,630,194 ^{15,16}
18.	Frankfort Harbor, MI	New Work					
		Approp.	0	0	0	0	1,923,450
		Cost	0	0	0	0	1,923,450
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	31,709
		Cost	0	0	0	0	31,709
		Maintenance					
		Approp.	240,724	49,300	166,738	133,120	11,681,042 ¹⁷
		Cost	241,542	49,846	166,649	117,513	11,665,285 ¹⁷
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	274,776
		Cost	0	0	0	0	274,776
19.	Grand Haven Harbor, MI	New Work					
		Approp.	0	0	0	0	1,283,469 ¹⁸
		Cost	0	0	0	0	1,283,469 ¹⁸
	Section 111	New Work					
		Approp.	0	0	0	0	175,000
		Cost	0	0	0	0	175,000
		Maintenance					
		Approp.	1,230,200	879,700	441,336	457,482	34,166,028 ¹⁹
		Cost	1,225,812	888,608	438,671	460,037	34,165,247 ¹⁹
19.	Grand Haven Harbor, MI (Continued)	Maintenance					
	Contributed Funds	Contrib.	0	0	0	0	15,585
		Cost	0	0	0	0	15,585

DETROIT, MI, DISTRICT1

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
	Section 111	Maintenance					
		Approp.	56,000	102,900	85,665	84,800	2,857,226
		Cost	60,795	104,491	85,673	84,734	2,857,160
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	813,613
		Cost	0	0	0	0	813,613
20.	Grand Marais Harbor, MN	New Work					
		Approp.	0	0	0	0	450,972
		Cost	0	0	0	0	450,972
		Maintenance					
		Approp.	4,337	2,045	2,830	166,221	2,555,790
		Cost	4,337	2,045	2,830	166,146	2,555,715
21.	Green Bay Harbor, WI	New Work					
		Approp.	0	0	0	0	9,946,395 ^{20,21}
		Cost	0	0	0	0	9,946,395 ^{20,21}
		Maintenance					
		Approp.	2,182,900	2,970,100	1,344,900	1,607,573	53,112,575 ²²
		Cost	2,183,373	2,954,028	1,361,584	1,611,212	53,112,330 ²²
22.	Harrisville Harbor, MI	New Work					
		Approp.	0	0	0	0	1,849,938
		Cost	0	0	0	0	1,849,938
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	287,454
		Cost	0	0	0	0	287,454
	Section 111	New Work					
		Approp	0	0	0	0	502,000
		Cost	0	0	0	0	502,000
		Maintenance					
		Approp.	(15,992)	5,730	191,312	9,100	1,528,667
		Cost	4,515	5,730	189,576	10,889	1,528,642
	Section 111	Maintenance					
		Approp.	0	0	0	0	88,000
		Cost	0	0	0	0	88,000
23.	Holland Harbor, MI	New Work					
		Approp.	0	0	0	0	736,122 ²³
		Cost	0	0	0	0	736,122 ²³

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	35,705
		Cost	0	0	0	0	35,705
	Section 111	New Work					
		Approp.	0	0	0	0	621,000
		Cost	0	0	0	0	621,000
		Maintenance					
		Approp.	302,100	316,900	781,506	877,154	28,631,064 ²⁴
		Cost	302,941	319,462	780,367	876,579	28,629,176 ²⁴
	Section 111	Maintenance					
		Approp.	59,000	67,900	67,835	70,300	2,405,950
		Cost	62,029	70,651	67,856	70,194	2,405,844
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	502,452
		Cost	0	0	0	0	502,452
24.	Inland Route, MI	New Work					
		Approp.	0	0	0	0	770,222
		Cost	0	0	0	0	770,222
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	148,000
		Cost	0	0	0	0	148,000
		Maintenance					
		Approp.	10,400	539,700	220,566	22,629	3,990,711 ²⁵
		Cost	23,918	539,602	220,747	22,599	3,990,681 ²⁵
25.	Kenosha Harbor, WI	New Work					
		Approp.	0	0	0	0	988,969 ^{26,27}
		Cost	0	0	0	0	988,969 ^{26,27}
		Maintenance					
		Approp.	54,922	436,915	196,809	78,811	11,965,856 ²⁸
		Cost	61,576	437,939	196,852	78,776	11,965,821 ²⁸
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	1,270,275
		Cost	0	0	0	0	1,270,275
26.	Kewaunee Harbor, WI	New Work					
		Approp.	0	0	0	0	758,333 ²⁹
		Cost	0	0	0	0	758,333 ²⁹

DETROIT, MI, DISTRICT1

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
		Maintenance					
		Approp.	219,800	279,800	717,935	93,446	11,547,612 ³⁰
		Cost	220,784	281,617	718,005	93,364	11,547,530 ³⁰
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	617,300
		Cost	0	0	0	0	617,300
27.	Keweenaw Waterway, MI	New Work					
		Approp.	0	0	0	0	5,974,141
		Cost	0	0	0	0	5,974,141
		Maintenance					
		Approp.	477,014	440,500	220,235	283,350	29,568,813 ³¹
		Cost	483,633	443,832	220,228	292,127	29,568,805 ³¹
28.	Lac LaBelle Harbor, MI	New Work					
		Approp.	0	0	0	0	269,270 ³²
		Cost	0	0	0	0	269,270 ³²
		Maintenance					
		Approp.	20,535	4,468	41,444	14,199	802,982
		Cost	21,425	4,468	41,444	14,166	802,949
29.	Lake St. Clair, MI, Channels	New Work					
		Approp.	0	0	0	0	7,675,357 ³³
		Cost	0	0	0	0	7,675,357 ³³
		Maintenance					
		Approp.	25,200	117,400	88,344	54,015	14,151,630 ³⁴
		Cost	51,571	114,177	82,476	60,116	14,148,556 ³⁴
30.	Leland Harbor, MI	New Work					
		Approp.	0	0	0	0	672,950
		Cost	0	0	0	0	672,950
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	354,139
		Cost	0	0	0	0	354,139
30.	Leland Harbor, MI (continued)	Maintenance					
		Approp.	231,800	118,300	139,151	151,539	3,866,412
		Cost	257,184	121,344	139,155	151,510	3,866,383
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	70,678
		Cost	0	0	0	0	70,678

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
31.	Lexington Harbor, MI	New Work					
		Approp.	0	0	0	0	1,646,304
		Cost	0	0	0	0	1,646,304
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	1,088,888
		Cost	0	0	0	0	1,088,888
	Section 111	New Work					
		Approp.	0	0	0	0	372,000
		Cost	0	0	0	0	372,000
	Section 111	Maintenance			227,508		
		Approp.	(23,121)	27,639	228,402	973	1,066,640
		Cost	213	27,634		1,915	1,066,594
32.	Little Lake Harbor, MI	Maintenance					
		Approp.	11,000	44,000	54,462	7,000	2,102,449
		Cost	19,051	45,363	54,473	6,995	2,102,444
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	57,670
		Cost	0	0	0	0	57,670
	Contributed Funds	Maintenance					
		Approp.	53,500	131,300	71,241	434,800	5,124,813
		Cost	60,422	130,918	71,893	434,741	5,124,754
	Ludington Harbor, MI	New Work					
		Approp.	0	0	0	0	7,912,202 ³⁵
		Cost	0	0	0	0	7,912,202 ³⁵
33.	Section 111	New Work					
		Approp.	0	0	0	0	620,000
		Cost	0	0	0	0	620,000
	Ludington Harbor, MI (continued)	Maintenance					
		Approp.	699,200	1,706,900	1,138,569	222,374	21,054,790 ³⁶
		Cost	756,673	1,722,891	1,125,852	234,536	21,054,145 ³⁶
	Section 111	Maintenance					
		Approp.	30,000	24,900	0	50,500	832,740
		Cost	29,920	19,906	5,090	50,465	832,648

DETROIT, MI, DISTRICT1

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
34.	Manistee Harbor, MI	Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	357,913
		Cost	0	0	0	0	357,913
		New Work					
		Approp.	0	0	0	0	2,696,522 ³⁷
		Cost	0	0	0	0	2,696,522 ³⁷
35.	Manistique Harbor, MI	Maintenance					
		Approp.	458,262	259,100	22,085	592,115	12,621,214 ³⁸
		Cost	471,806	259,050	22,147	592,086	12,621,185 ³⁸
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	1,374,164
		Cost	0	0	0	0	1,374,164
		New Work					
		Approp.	0	0	0	0	1,299,355 ³⁹
		Cost	0	0	0	0	1,299,355 ³⁹
		Maintenance					
		Approp.	51,600	235,975	2,042,571	2,220,886	6,994,015
		Cost	113,446	236,105	2,042,691	2,221,031	6,993,995
36.	Manitowoc Harbor, WI	Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	316,333
		Cost	0	0	0	0	316,333
		New Work					
		Approp.	0	0	0	0	2,048,914 ⁴⁰
		Cost	0	0	0	0	2,048,914 ⁴⁰
36.	Manitowoc Harbor, WI (Continued)	Contributed Funds					
		New Work					
		Contrib.	0	0	0	0	1,911,130
		Cost	0	0	0	0	1,911,130
		Maintenance					
		Approp.	208,100	185,900	249,439	182,413	12,459,273 ⁴¹
36.	Manitowoc Harbor, WI (Continued)	Cost	210,525	187,779	249,467	179,126	12,455,986 ⁴¹
		Contributed Funds					
		Maintenance					
		Contrib.	9,206	9,206	(7,163)	9,206	75,949
36.	Manitowoc Harbor, WI (Continued)	Cost	0	0	18,875	0	66,735

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
37.	Marquette Harbor, MI	New Work					
		Approp.	0	0	0	0	1,282,893 ⁴²
		Cost	0	0	0	0	1,282,893 ⁴²
		Maintenance					
		Approp.	238,411	36,400	186,829	944	3,366,332 ⁴³
		Cost	238,140	36,157	186,843	1,444	3,366,332 ⁴³
38.	Menominee Harbor & River, MI & WI	Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	465,757
		Cost	0	0	0	0	465,757
		New Work					
		Approp.	0	0	0	0	533,476 ⁴⁴
		Cost	0	0	0	0	533,476 ⁴⁴
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	36,762
		Cost	0	0	0	0	36,762
		Maintenance					
		Approp.	38,000	144,820	180,181	78,880	3,957,761 ⁴⁵
		Cost	44,764	144,748	180,017	79,051	3,957,695 ⁴⁵
39.	Milwaukee Harbor, WI	Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	1,351,852
		Cost	0	0	0	0	1,351,852
		New Work					
		Approp.	0	0	0	0	8,231,024 ⁴⁶
		Cost	0	0	0	0	8,231,024 ⁴⁶
	Contributed Funds	Maintenance					
		Approp.	1,319,500	783,800	1,212,969	396,239	54,167,745 ⁴⁷
		Cost	1,354,333	767,988	1,242,020	395,059	54,166,391 ⁴⁷
		Maintenance					
		Contrib.	0	0	0	0	322,471
		Cost	0	0	0	0	322,471
39.	Milwaukee Harbor, WI (Continued)	Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	12,715,560
		Cost	0	0	0	0	12,715,560
40.	Monroe Harbor, MI	New Work					
		Approp.	0	0	0	0	687,340
		Cost	0	0	0	0	687,340

DETROIT, MI, DISTRICT1

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	300,000
		Cost	0	0	0	0	300,000
		Maintenance					
		Approp.	195,200	1,008,700	179,610	531,605	60,711,666 ⁴⁸
		Cost	196,078	1,008,680	179,598	531,621	60,711,595 ⁴⁸
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	249,849 ⁴⁹
		Cost	0	0	0	0	249,849 ⁴⁹
41.	Muskegon Harbor, MI	New Work					
		Approp.	0	0	0	0	2,912,110 ⁵⁰
		Cost	0	0	0	0	2,912,110 ⁵⁰
		New Work					
		Approp.	0	0	0	0	105,000
		Cost	0	0	0	0	105,000
		Maintenance					
		Approp.	303,200	494,700	207,437	26,493	10,906,270 ⁵¹
		Cost	304,572	501,924	207,125	26,804	10,906,175 ⁵¹
	Section 111	Maintenance					
		Approp.	160,000	(1,100)	0	0	3,265,600
		Cost	157,407	2,993	75	0	3,265,600
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	13,824,300
		Cost	0	0	0	0	13,824,300
42.	New Buffalo Harbor, MI	New Work					
		Approp.	0	0	0	0	1,285,716
		Cost	0	0	0	0	1,285,716
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	1,186,467
		Cost	0	0	0	0	1,186,467
42.	New Buffalo Harbor, MI (Continued)	Maintenance					
		Approp.	8,655	172,000	32,955	135,977	5,574,982 ⁵²
		Cost	19,240	172,016	32,975	135,956	5,574,961 ⁵²
43.	Oconto Harbor, WI	New Work					
		Approp.	0	0	0	0	130,754 ⁵³
		Cost	0	0	0	0	130,754 ⁵³
		Maintenance					
		Approp.	(1,168)	1,064	94,330	81,400	2,439,626 ⁵⁴
		Cost	7,878	1,064	94,023	83,703	2,439,622 ⁵⁴

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
44.	Ontonagon Harbor, MI	New Work					
		Approp.	0	0	0	0	953,903 ⁵⁵
		Cost	0	0	0	0	953,903 ⁵⁵
		Maintenance					
		Approp.	599,000	829,200	443,905	508,359	23,788,349 ⁵⁶
		Cost	609,765	829,049	414,195	539,609	23,788,236 ⁵⁶
45.	Pentwater Harbor, MI	New Work					
		Approp.	0	0	0	0	179,899
		Cost	0	0	0	0	179,899
		Maintenance					
		Approp.	1,523,900	862,600	3,817,734	597,232	14,894,733
		Cost	1,556,995	862,811	3,817,919	597,231	14,894,730
46.	Point Lookout, MI	New Work					
		Approp.	0	0	0	0	2,642,584
		Cost	0	0	0	0	2,642,584
		Maintenance					
		Approp.	(1,224)	927	101,752	486,000	4,656,087 ⁵⁷
		Cost	11,871	927	101,751	485,972	4,656,058 ⁵⁷
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	9,257
		Cost	0	0	0	0	9,257
47.	Port Austin Harbor, MI	New Work					
		Approp.	0	0	0	0	3,191,234
		Cost	0	0	0	0	3,191,234
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	172,100
		Cost	0	0	0	0	172,100
		Maintenance					
		Approp.	1,005	2,713	19,082	20,861	2,103,638 ⁵⁸
		Cost	1,040	2,713	19,082	13,861	2,096,638 ⁵⁸
48.	Port Sanilac Harbor, MI	New Work					
		Approp.	0	0	0	0	909,963
		Cost	0	0	0	0	909,963
48.	Port Sanilac Harbor, MI (Continued)	New Work					
		Contrib.	0	0	0	0	487,108
	Contributed Funds	Cost	0	0	0	0	487,108
	Section 111	New Work					
		Approp.	0	0	0	0	336,000
		Cost	0	0	0	0	336,000
		Maintenance					
		Approp.	(4,688)	11,500	41,756	283,400	2,668,398 ⁵⁹
		Cost	1,857	11,579	41,759	282,953	2,667,951 ⁵⁹

DETROIT, MI, DISTRICT1

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	115,000
		Cost	0	0	0	0	115,000
	Section 111	Maintenance					
		Approp.	0	39,200	0	10,000	1,201,450
		Cost	0	45,241	79	9,895	1,201,345
49.	Port Washington Harbor, WI	New Work					
		Approp.	0	0	0	0	2,582,204 ⁶⁰
		Cost	0	0	0	0	2,582,204 ⁶⁰
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	1,624,000
		Cost	0	0	0	0	1,624,000
		Maintenance					
		Approp.	164,500	135,200	43,256	25,330	3,474,993 ⁶¹
		Cost	165,735	135,696	44,343	25,270	3,474,933 ⁶¹
50.	Port Wing Harbor, WI	New Work					
		Approp.	0	0	0	0	63,393
		Cost	0	0	0	0	63,393
		Maintenance					
		Approp.	258,932	(8,781)	2,693	48,639	1,491,242
		Cost	252,852	(2,778)	2,769	48,605	1,491,208
51.	Portage Lake Harbor, MI	New Work					
		Approp.	0	0	0	0	256,129
		Cost	0	0	0	0	256,129
		Maintenance					
		Approp.	84,300	33,837	144,862	2,837,755	5,891,502
		Cost	90,648	33,848	144,918	2,837,030	5,890,567
52.	Rouge River, MI	New Work					
		Approp.	0	0	0	0	675,251 ⁶²
		Cost	0	0	0	0	675,251 ⁶²
		Maintenance					
		Approp.	457,900	549,300	123,755	179,603	38,339,817 ⁶³
		Cost	458,313	549,376	123,760	178,867	38,339,081 ⁶³

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
53.	Saginaw River, MI (Federal Funds)	New Work Approp. Cost	0 0	0 0	0 0	0 0	14,917,127 ⁶⁴ 14,917,127 ⁶⁴
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	13,600 13,600
		Maintenance Approp. Cost	1,020,400 1,112,917	2,077,350 2,091,979	1,022,466 1,022,382	1,950,876 1,939,543	82,728,344 ⁶⁵ 82,715,574 ⁶⁵
54.	St. Clair River, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	19,213,246 19,213,246
		Maintenance Approp. Cost	826,800 812,947	789,100 823,195	798,453 797,223	2,311,458 2,294,377	30,542,919 ⁶⁶ 30,523,288 ⁶⁶
55.	St. Joseph Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	976,485 ⁶⁷ 976,485 ⁶⁷
	Section 111	New Work Approp. Cost	0 0	0 0	0 0	0 0	828,000 828,000
		Maintenance Approp. Cost	596,400 596,456	900,200 902,707	489,518 492,623	995,832 992,969	22,415,763 ⁶⁸ 22,410,955 ⁶⁸
	Section 111	Maintenance Approp. Cost	296,000 301,120	175,000 180,610	124,563 124,658	130,900 130,920	8,521,914 8,521,884
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	962,216 962,216
56.	Saugatuck Harbor & Kalamazoo River, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	364,527 ⁶⁹ 364,527 ⁶⁹

DETROIT, MI, DISTRICT1

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
		Maintenance					
		Approp.	88,700	3,330,470	1,725,815	482,600	10,004,762 ⁷⁰
		Cost	108,508	3,333,922	1,726,003	482,563	10,004,725 ⁷⁰
57.	Saxon Harbor, MI	New Work					
		Approp.	0	0	0	0	507,507 ⁷¹
		Cost	0	0	0	0	507,507 ⁷¹
	Section 111	New Work					
		Approp.	0	0	0	0	204,270
		Cost	0	0	0	0	204,270
		Maintenance					
		Approp.	97,872	10,322	265,987	(31,487)	1,206,371
		Cost	113,335	10,332	65,556	168,888	1,206,316
58.	Sebewaing River, MI	New Work					
		Approp.	0	0	0	0	35,573
		Cost	0	0	0	0	35,573
		Maintenance					
		Approp.	(8,717)	186,600	66,405	35,864	4,285,247 ⁷²
		Cost	1,483	186,645	66,258	36,023	4,285,219 ⁷²
59.	Sheboygan Harbor, WI	New Work					
		Approp.	0	0	0	0	1,136,088 ⁷³
		Cost	0	0	0	0	1,136,088 ⁷³
		Maintenance					
		Approp.	193,300	69,200	123,101	105,076	9,480,347 ⁷⁴
		Cost	194,224	70,945	123,154	104,980	9,480,251 ⁷⁴
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	609,028
		Cost	0	0	0	0	609,028
60.	South Haven Harbor, MI	New Work					
		Approp.	0	0	0	0	452,426 ⁷⁵
		Cost	0	0	0	0	452,426 ⁷⁵
60.	South Haven Harbor, MI (Continued) Section 111	New Work					
		Approp.	0	0	0	0	532,000
		Cost	0	0	0	0	532,000
		Maintenance					
		Approp.	80,227	140,702	354,226	84,666	6,769,363 ⁷⁶
		Cost	53,693	170,347	349,614	99,681	6,769,304 ⁷⁶

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
<hr/>							
	Section 111						
		Maintenance					
		Approp.	190,000	129,300	0	(100)	1,936,133
		Cost	189,999	131,091	(87)	0	1,936,054
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	1,632,076
		Cost	0	0	0	0	1,632,076
61.	Sturgeon Bay, WI, and Lake Michigan Ship Canal, WI	New Work					
		Approp.	0	0	0	0	1,059,722 ⁷⁷
		Cost	0	0	0	0	1,059,722 ⁷⁷
		Maintenance					
		Approp.	75,900	247,800	341,941	237,401	11,493,613 ⁷⁸
		Cost	79,140	238,157	351,980	237,450	11,493,562 ⁷⁸
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	884,899
		Cost	0	0	0	0	884,899
62.	Two Rivers Harbor, WI	New Work					
		Approp.	0	0	0	0	360,320 ⁷⁹
		Cost	0	0	0	0	360,320 ⁷⁹
		Maintenance					
		Approp.	59,360	(16)	274,338	444,145	9,713,054 ⁸⁰
		Cost	63,946	1,478	250,652	452,010	9,694,919 ⁸⁰
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	58,057
		Cost	0	0	0	0	58,057
63.	White Lake Harbor, MI	New Work					
		Approp.	0	0	0	0	207,862
		Cost	0	0	0	0	207,862
63.	White Lake Harbor, MI (Continued) Section 111	New Work					
		Approp.	0	0	0	0	249,700
		Cost	0	0	0	0	249,700
		Maintenance					
		Approp.	5,266,000	697,300	78,894	176,276	11,099,064
		Cost	5,277,383	699,199	78,937	176,190	11,098,974

DETROIT, MI, DISTRICT1

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
	Section 111	Maintenance					
		Approp.	0	(3,500)	0	59,600	1,229,715
		Cost	0	0	0	59,587	1,229,606
72.	Clinton River Spillway, MI	New Work					
		Approp.	0	0	59,000	150,000	3,495,008
		Cost	13,816	3,147	47,528	168,792	3,494,883
73.	Fort Wayne Metro Area, IN	New Work					
		Approp.	10,615,000	4,730,000	4,087,000	1,554,000	36,945,000
		Cost	10,655,342	4,686,386	4,196,925	1,606,848	36,939,652
	Contributed Funds	New Work					
		Contrib.	2,800,000	1,200,000	1,524,000	222,221	7,947,222
		Cost	2,502,554	1,737,370	1,072,714	672,567	7,940,961
74.	Saginaw River-1958 Act Flint, MI	New Work					
		Approp.	0	0	0	0	24,755,359
		Cost	0	0	0	0	24,755,359
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	173,000
		Cost	0	0	0	0	173,000
		Maintenance					
		Approp.	875,000	0	0	75,000	6,450,001
		Cost	75,174	94,726	659,374	112,580	6,429,802
75.	Sebewaing River, MI	New Work					
		Approp.	0	0	0	0	365,642
		Cost	0	0	0	0	365,642
		Maintenance					
		Approp.	(14,300)	3,800	4,501	8,678	464,135
		Cost	0	4,331	4,507	8,591	464,048
79.	Surveillance of Northern Boundary Waters	New Work					
		Approp.	0	0	0	0	0
		Cost	0	0	0	0	0
		Maintenance					
		Approp.	2,965,000	2,969,100	3,081,614	3,093,366	74,180,730 ⁸¹
		Cost	2,844,210	3,088,137	3,102,836	3,116,939	74,150,143 ⁸¹

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total to Sep. 30, 2001
80.	St. Marys River, MI	New Work					
		Approp.	0	0	0	0	160,657,071 ⁸²
		Cost	0	0	0	0	160,657,071 ⁸²
		Maintenance					
		Approp.	16,535,691	21,983,900	20,811,820	22,268,620	413,620,352 ^{83,84}
		Cost	16,704,004	22,252,293	20,857,071	22,080,895	413,391,636 ^{83,84}
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	340,400
		Cost	(319)	0	320	0	340,400

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

¹Includes \$92,774 for previous projects.²Includes \$18,889 for previous projects.³Includes \$114,786 for previous projects.⁴Includes \$792 for diked disposal.⁵Includes \$85,849 for previous projects.⁶Includes \$12,008 for previous projects.⁷Excludes \$30,000 for contributed funds.⁸Includes \$25,500 for previous projects.⁹Includes \$3,796,180 for previous projects.¹⁰Includes \$2,097,254 for previous projects.¹¹Includes \$42,470,585 for diked disposal.¹²Includes \$1,547,195 for previous projects.¹³Includes \$1,556,249 for diked disposal.¹⁴Includes \$3,239,910 for previous projects.¹⁵Includes \$89,309 for previous projects.¹⁶Includes \$42,084 expended for M&O of Dams.
(Excludes \$10 expended in FY99).¹⁷Includes \$1,204,500 for diked disposal.¹⁸Includes \$311,329 for previous projects.¹⁹Includes \$13,437 for previous project and
\$780,400 for diked disposal.²⁰Includes \$506,437 for previous projects.²¹Excludes \$100,000 contributed funds.²²Includes \$8,918 for previous projects and
\$7,642,642 for diked disposal.²³Includes \$176,620 for previous projects.²⁴Includes \$127,598 for previous projects and
\$1,663,300 for diked disposal.²⁵Includes \$404,300 for diked disposal.²⁶Includes \$453,839 for previous projects.²⁷Excludes \$3,000 contributed funds.²⁸Includes \$21,818 for previous projects and
\$4,378,600 for diked disposal.²⁹Includes \$149,312 for previous projects.³⁰Includes \$88,364 for previous projects and
\$2,961,461 for diked disposal.³¹Includes \$402,242 for previous projects and
\$1,523,500 for diked disposal.³²Excludes \$38,190 contributed funds.³³Includes \$656,000 for previous projects.³⁴Includes \$235,346 for previous projects and
\$5,119,800 for diked disposal.³⁵Includes \$491,416 for previous projects.³⁶Excludes \$136,286 contributed funds.³⁷Includes \$354,999 for previous projects.³⁸Includes \$150,910 for previous projects.³⁹Includes \$3,955 for previous projects.⁴⁰Includes \$400,126 for previous projects.⁴¹Includes \$54,288 for previous projects and
\$3,081,756 for diked disposal.⁴²Includes \$312,423 for previous projects.⁴³Includes \$36,194 for previous projects.⁴⁴Includes \$312,423 for previous projects.⁴⁵Includes \$36,194 for previous projects and
\$593,660 for diked disposal.⁴⁶Includes \$1,293,220 for previous projects.⁴⁷Includes \$459,305 for previous projects and
\$6,380,925 for diked disposal.⁴⁸Includes \$38,606,400 for diked disposal.⁴⁹Includes \$83,182 contributed funds - diked disposal.⁵⁰Includes \$613,408 for previous projects.⁵¹Includes \$446,183 for previous projects.⁵²Includes \$181,500 for diked disposal.⁵³Includes \$84,569 for previous projects.⁵⁴Includes \$8,181 for previous projects.⁵⁵Includes \$284,802 for previous projects.⁵⁶Includes \$113,326 for previous projects and
\$21,000 for diked disposal.⁵⁷Includes \$121,600 for diked disposal.⁵⁸Includes \$159,000 for diked disposal.⁵⁹Includes \$9,158 for diked disposal.⁶⁰Includes \$188,495 for previous projects.⁶¹Includes \$15,123 for previous projects and
\$10,621 for diked disposal.⁶²Includes \$50,084 for previous projects.⁶³Includes \$56,608 for previous projects and
\$14,907,318 for diked disposal.⁶⁴Includes \$962,556 for previous projects.⁶⁵Includes \$20,951,888 for diked disposal (\$1,671,660
public works fund and \$49,419 emergency relief funds)⁶⁶Includes \$420,000 expended for M&O of Dams.⁶⁷Includes \$503,113 for previous projects.⁶⁸Includes \$638,076 for diked disposal.⁶⁹Includes \$90,232 for previous projects.⁷⁰Includes \$117,554 for previous projects.⁷¹Excludes \$50,193 contributed funds.⁷²Includes \$15,000 for previous projects.⁷³Includes \$487,817 for previous projects.⁷⁴Includes \$87,131 for previous projects and
\$907,792 for diked disposal.⁷⁵Includes \$187,233 for previous projects.⁷⁶Includes \$131,299 for previous projects and
\$42,381 for diked disposal.⁷⁷Includes \$323,419 for previous projects.⁷⁸Includes \$219,730 for previous projects and
\$311,119 for diked disposal.⁷⁹Includes \$212,857 for previous projects.⁸⁰Includes \$33,113 for previous projects and
\$1,187,472 for diked disposal.⁸¹Includes \$3,973,897 for previous projects.⁸²Includes \$2,904,807 for previous projects.⁸³Includes \$13,100 for diked disposal.⁸⁴Includes \$799,947 expended for M&O of Dams.

DETROIT, MI, DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
1.		ALGOMA HARBOR, WI	
	Mar. 3, 1871	Outer basin enclosed by a north pier, 1,102 feet long and a south breakwater 1,530 feet long, a 2,100 foot entrance channel and outer basin.	River and Harbor Act.
	Nov. 17, 1988	Deauthorization of the outer harbor basin feature of the navigation project.	H. Doc. 1098, 100 th Cong. 2d Sess., Sec. 52(c) of the WRDA of 1988.
2.		ALPENA HARBOR, MI	
	Sep. 19, 1890	Channel depth of 16 ½ feet.	Annual Report, 1889, p. 2288.
	Mar. 2, 1919	Rubblemound breakwater for protecting channel on south side and widening entrance channel.	H. Doc. 830, 65th Cong., 2d Sess., and Rivers & Harbors Comm. Doc. 1, 67th Cong., 1st Sess.
	Sep. 22, 1922		Rivers and Harbors Comm. Doc. 42, 72d Cong., 1st. Sess.
	Aug. 30, 1935	21 and 18½ foot channel depths and turning basin.	H. Doc. 151, 88th Cong., 1st. Sess. ¹
	Oct. 27, 1965	Present project dimensions. New turning basin. Removal of old breakwater and construction of new breakwater.	
	Nov. 17, 1986	Deauthorization of the feature authorized by the 1965 River and Harbor Act.	H. R. 6 (formerly S. 1567), 99 th Cong., 2d Sess. (WRDA of 1986).
3.		ARCADIA HARBOR, MI	
	Mar. 3, 1905	Maintenance of existing 12-foot channel.	H. Doc. 194, 58th Cong., 2d Sess.
4.		ASHLAND HARBOR, MI	
	Aug. 5, 1886	Breakwater 7,900 feet long and dredging to remove a shoal.	H. Ex. Doc. 89, 48th Cong., 2d Sess. Annual Reports, 1886, p. 1674; and 1887, p. 1966.
	Aug. 11, 1888	Appropriation of \$60,000 for 'Continuing improvements on enlarged project' (On completion of Poe Lock in 1896, with available depth of 20 feet, dredging at Ashland Harbor was carried to a similar depth.)	H. Ex. Doc. 89, 48th Cong., 2d Sess. Annual Reports, 1886, p. 1674; and 1887, p. 1966.
	Mar. 3, 1899	Detached breakwater extending 4,700 feet out from shore at a point 2,600 feet east of main breakwater (prolonged) and parallel thereto.	
	Jun. 6, 1990		
	Aug. 8, 1917	Project modified by omitting detached breakwater and defining depth and extend of channel to be dredged.	H. Doc. 1698, 64th Cong., 2d Sess.
	Jul. 3, 1930	Widening part of present channel for entrance channel and for basin in eastern part of harbor.	S. Doc. 133, 71st Cong., 2d Sess
	Aug. 30, 1935	Deepening east basin to 25 feet and west channel, as far as 8th Ave. West, extended to 21 feet.	Rivers and Harbors Committee Doc. 46, 82d Cong., 1st Sess.
	Mar. 2, 1945	Widening west channel to 750 feet at its westerly end	H. Doc. 337, 77th Cong., 1st Sess.
	Jul. 14, 1960	Deepening portions of east basin and west channel to 27 and 21 feet, respectively.	H. Doc. 165, 86th Cong., 1st Sess. ¹
5.		AU SABLE HARBOR AT AU SABLE RIVER (OSCODA), MI	
	Mar. 2, 1945	Dredging channels 12 and 10 feet deep and riprapping North Pier.	H. Doc. 446, 78 th Cong., 2d Sess. ¹
6.		BAY PORT HARBOR, MI	
	May 20, 1965	Channel 6 feet deep and 50 feet wide.	Section 107, 1960 Rivers and Harbor Act.
7.		BIG SUAMICO RIVER, WI	
	Aug. 26, 1937	Channel from Green Bay to 1,800 feet above the river	H. Doc. 498, 74 th Cong., 2d Sess. ¹

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
		mouth.	
8	Sep. 19, 1890 Jul. 13, 1892	BLACK RIVER, MI (PORT HURON) Channel from mouth of Grand Trunk R.R. Bridge.	Annual Report, 1889, p. 2291.
	Sep. 22, 1922	Channel from Grand Trunk R.R. Bridge to Washington Ave.	No Printed Report.
	Jul. 3, 1930 Aug. 30, 1935	Consolidation of projects for Black River at Port Huron and Mouth of Black River. Settling Basin.	H. Doc. 436, 64 th Cong., 1st. Sess.
	Apr. 23, 1970	Deepening channel and settling basin to 20 feet, and widening to 100 feet 2 bends; 1 at the foot of 12 th St., the other below the Grand Trunk R.R. Bridge. Extension of existing channel.	H. Doc. 162, 71 st Cong., 2d Sess. Rivers and Harbors Committee Doc. 54, 72d Cong., 2d Sess.
			Section 107, 1960 Rivers and Harbors Act.
9.	Mar. 2, 1945	BLACK RIVER HARBOR, MI (UPPER PENINSULA) Two converging breakwaters, an entrance channel between breakwaters, an inner channel, and an irregular harbor basin. Project depths 12 feet in approach channel and 8 feet in the river channel and basin.	H. Doc. 446, 78 th Cong., 2d Sess. ¹
10.	Jul. 6, 1965	BOLLES HARBOR, MI Entrance channel in Lake Erie, Access channel in LaPlaisance Creek. Steel sheet pile revetment.	Section 107, 1960 Rivers and Harbors Act.
11.	Aug. 2, 1882	CEDAR RIVER HARBOR, MI Dredge an entrance channel (datum at 580.69 feet above mean tide at New York) and construct two parallel piers extending lakeward from mouth of Cedar River.	S. Ex. Doc. 12, 47th Cong., 1st Sess.
	Oct. 28, 1965	Modification of project to provide for two parallel entrance piers including a new rubblemound east pier with a sport fishing walkway; an entrance channel from Green Bay to mouth of Cedar River, and a turning basin.	H. Doc. 248, 89th Cong., 1st Sess.
12.	Aug. 14, 1876	CHARLEVOIX HARBOR, MI Channel from Lake Michigan to Round Lake protected where needed by piers and revetments.	S. Ex. Doc. 16, 44th Cong., 1st Oess. and Annual Report 1876, p. 523.
	Aug. 2, 1882	Channel from Round Lake to Lake Charlevoix.	No Prior Survey of Estimates.
	Jun 13, 1902	Project depth increased to 15 feet.	No Prior Survey of Estimates.
	Jun. 20, 1938	Project depth increased to 18 feet.	S. Doc. 163, 75th Cong., 3rd Sess. ¹
	Nov. 17, 1988	Restore recreational uses or provide comparable recreational uses at the South Pier.	H. Doc. 1098, 100th Cong., 2d Sess.
	Mar. 29, 1977	Project depth increased to 24 and 23 feet, and construction of revetment upstream of Highway Bridge.	Sec. 25 of the WRDA of 1988. Section 107, 1960 Rivers and Harbors Act.
13.	Aug. 5, 1886	CLINTON RIVER, MI Channel in River and Lake St. Clair, Pile Dikey, Closing channels and making Cutoff, and revetments as needed.	S. Doc. 199, 46th Cong., 2d Sess. Annual Report, 1880, p. 2062, and H. Doc. 210, 44th Cong., 2d Sess., and Annual Report, 1886, p. 219.
	Jul. 19, 1963	Widening entrance channel and constructing protected harbor basin	Section 107, 1960 Rivers and Harbors Act.
14.	Aug. 26, 1937	CORNUCOPIA HARBOR, WI	

DETROIT, MI, DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Sep. 3, 1954	Entrance channel 50 feet wide and 10 feet deep between existing piers from bay to a turning basin 200 feet long, 8 feet deep, with maximum width of 180 feet, with 150- and 300-foot inner channels each 50 feet wide and 8 feet deep. Reconstruction and Federal maintenance of ease and west entrance piers, a 25-foot extension of west pier and a 300-foot extension of existing westerly inner channel at a depth of 8 feet and a width of 50 feet.	S. Committee, 75th Cong., 1st Sess. H. Doc. 434, 83rd Cong., 2d Sess. ¹
15.		DETROIT RIVER, MI	
	Jun. 13, 1902 Mar. 3, 1905 Jun. 25, 1910 Mar. 4, 1913 Mar. 2, 1907 Jun. 25, 1910 Mar. 2, 1919 Jul. 3, 1930 Aug. 30, 1935 ³	Amherstburg Channel and removal of Grosse Ile Shoal. Fighting Island Channel. Livingstone Channel. Channel Depths of 26 and 25 feet. Channel to Wyandotte 21 feet deep and 300 feet wide through Middle Ground opposite Head of Fighting Island.	H. Doc. 712, 56th Cong., 1st Sess. and 40, 58th Cong., 3rd Sess. H. Doc. 17, 62d Cong., 1st Sess. H. Doc. 266, 59th Cong., 1st Sess.; 676, 61st Cong., 2d Sess.; and 322, 65th Cong., 1st Sess. H. Doc. 253, 70th Cong., 1st Sess. Rivers and Harbors Committee Doc. 1, 72d Cong., 1st Sess. ¹
	Aug. 26, 1937	Trenton Channel and Turning Basin (West of Grosse Ile).	H. Doc. 205, 75th Cong., 1st Sess.
	Mar. 2, 1945	American Channel North of Belle Isle between Windmill Point and Fairway Slip, Detroit.	H. Doc. 734, 79th Cong., 2d Sess.
	Jul. 24, 1946 ²²	Deepen Westerly 300 feet of Amherstburg Channel and Ballards Reef Channel below Livingstone Channel to 27 feet to provide depths adequate for 24-foot draft navigation when governing Lakes are at Datum, with necessary widening at approaches and bends and construction of necessary compensating works, Detroit River.	H. Doc. 335, 80th Cong., 1st Sess.
	May 17, 1950 ⁴	Extend Turning Basin in Trenton Channel 600 feet. Dredge through East Draw of lower Grosse Ile Bridge and extend 300-foot width of Channel North of lower Grosse Ile Bridge.	S. Doc. 30, 81st Cong., 1st Sess. ¹
	Mar. 21, 1956 ²²	Channel Depth of 28.5 feet throughout downbound and Two-Way Channels, except in upper (27.7-foot depth) and lower (29-foot depth), Livingstone Channel, and in upbound Channel; 27-foot depth in Ballards Reef Channel below junction with Livingstone Channel, 27.5-foot depth in westerly 300-foot width of Limekiln Crossing and Amherstburg Reaches, and 28.5-foot depth in westerly 300-foot width of Hackett Beach, with necessary compensation works. Also 28.5-foot depth in Lake Erie from Detroit River to Pelee Passage Shoal, inclusive.	S. Doc. 71, 84th Cong., 1st Sess. ¹
	Jul. 14, 1960	Trenton Channel: Deepen to 25 feet, where necessary, Wyandotte Reach from Detroit River to Upper Grosse Ile Bridge, about 5.5 miles, deepen to 28 feet and widen to 300 feet below Upper Grosse Ile Bridge to and including a Turning Basin 28 feet deep and 15 feet across in area outside project limits.	H. Doc. 319, 86th Cong., 2d Sess. ¹
	Aug. 13, 1968 ²²	Trenton Channel: Deepen to 28 feet and widen to 300 feet from Upper Turning Basin at Trenton to Gibraltar,	H. Doc. 338, 90th Cong., 2d Sess. ¹

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
		about 20,500 feet from downstream: Construct a Turning Basin at Gibraltar at a depth of 28 feet, width of 830 feet, and length of 1,500 feet: Build compensating works to maintain water levels.	
16.		DULUTH-SUPERIOR HARBOR, MN AND WI	
	Jun. 3, 1896	Dredging.	H.Ex. Doc. 59, 53d Cong., 3rd Sess. and Annual Report, 1895, p. 2538.
	Jun. 13, 1902 Mar. 2, 1907	Rebuilding piers at Superior Entry. Enlarge plan for Superior Entry and additional dredging near draw span of Burlington Northern railway bridge.	H. Doc. 82, 59th Cong., 2d Sess.
	May 28, 1908 ⁵	Dredging additional area of basin inside Duluth entrance to 22-foot depth.	H. Doc. 221, 60th Cong., 1st Sess.
	Jul. 27, 1916	Enlarging Superior Harbor Basin.	H. Doc. 651, 64th Cong., 1st Sess.
	Mar. 2, 1919	Removal of shoal point at southerly end of East Gate Basin.	H. Doc. 1018, 64th Cong., 1st Sess.
	Jan. 21, 1927 Jul. 30, 1930 ³	Howards Bay Channel, 20 feet deep.	H. Doc. 145, 69th Cong., 1st Sess., and Rivers and Harbors Committee Doc. 32, 71st Cong., 2d Sess.
	Aug. 30, 1930 ³ Jul. 16, 1952 ^{4,6}	Deepening and widening channels and basins. Deepen Superior Front Channel and a portion of East Gate Basin to 25 feet.	H. Doc. 482, 72d Cong., 2d Sess. H. Doc. 374, 82d Cong., 2d Sess.
	Jul. 14, 1960 ^{7,22}	Present project dimensions of channels and basin.	H. Doc. 150, 86th Cong., 1st Sess.; H. Doc. 196, 86th Cong., 1st Sess.
	Oct. 4, 1961	Abandons northerly portion of 21st Avenue West Channel.	
	Nov. 17, 1986	Deepen portions of the North and South Channels, the entire Upper Channel and Minnesota Channel to 27 feet; widen the Cross Channel turning basin to 1,500 feet; widen the bend at the Arrowhead Bascule Bridge to 600 feet, and construct an upland CDF.	H. Doc. 204, 99th Cong., 2d Sess. Sec. 202a of WRDA of 1986.
17.		FOX RIVER, WI	
	Aug. 5, 1886	Improvement of Fox River.	Annual Report, 1885, pp. 2041-2045 (plan of a board approach Dec. 10, 1884, as modified by Corps of Engineers, May 14, 1886).
	Sep. 19, 1890	Dredging Fond du Lac Harbor on Lake Winnebago.	H. Ex. Doc. 24, 51st Cong., 1st Sess.
	Jun. 3, 1896	Improvement of Wolf River.	Annual Report, 1890, p. 2390.
	Jun. 3, 1896	Improvement of Stockbridge, of Calumet and Miller Bay, and of Brothertown Harbor, on Lake Winnebago.	No prior survey or estimates.
	Jun. 13, 1902		No prior survey or estimates.
	Mar. 2, 1907		
	Mar. 3, 1925 ^{8,22}	Increased depth in rock cuts on lower river, widen Neenah Channel, and a concrete retaining wall at Kaukauna.	No prior survey or estimates. H. Doc. 294, 68th Cong., 1st Sess. ¹
	Jun. 26, 1934 ⁹	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors.	
	Jul. 3, 1958 ¹⁰	Sec. 108, Federal project structure, appurtenances, and real property of Upper Fox River, WI, be disposed of to State of Wisconsin.	S. Bill 3910, 85th Cong., 2d Sess.
	Oct. 31, 1992	Sec. 332 authorized transfer of navigation system to Wisconsin subject to agreement, Federal government to continue water regulation/dam operation.	Public Law 102-580 (WRDA of 1992).

DETROIT, MI, DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
18.		FRANKFORT HARBOR, MI	
	Jun. 23, 1866 ¹¹	A New Outlet 12 feet deep protected by Piers and Revetments.	H. Doc. 482, 5th Cong., 2d Sess.
	Mar. 3, 1925	Exterior Breakwaters, removal of portions of Piers, Project Dimensions of Outer Basin.	H. Doc. 208, 68th Cong., 1st Sess.
	Aug. 26, 1937	Dredge the area in Lake Betsie.	
	Oct. 27, 1965	Deepen approach and entrance channels. Extend Inner Basin and Dredge recreational anchorage area.	H. Doc. 511, 74th Cong., 2d Sess., S. Doc 16, 89th Cong., 1st Sess. ¹
19.		GRAND HAVEN HARBOR, MI	
	Jun. 23, 1866	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Jun. 14, 1880	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Sep. 19, 1890	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Jul. 13, 1892	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Jul. 3, 1930	Present Project dimensions of Harbor channel to Grand Trunk Car Ferry Slip and River Channel. Eliminating all of that portion of Grand River above Bass River, Consolidation of Projects for Harbor and River.	S. Doc. 88, 71st Cong., 2d Sess.
	Aug. 26, 1937	Channel to Spring Lake.	Rivers and Harbors Committee Doc. 1, 75th Cong., 3rd Sess. ¹
	Mar. 2, 1945	Present Project Dimensions of Harbor Channel from Car Ferry Slip to Grand Trunk Railway Bridge and Turning Basin.	H. Doc. 661, 76th Cong., 3rd Sess. ¹
	Nov. 17, 1986	Deepen the harbor entrance channel and harbor river channel to 29 and 27 feet, respectively; provide a new and larger turning basin, trapezoidal in shape, 1,200 feet long at the channel, 300 feet long at the shore, 800 feet at a right angle to the channel, and 18 feet deep.	H. Doc. 227, 98th Cong., 2d Sess. Sec. 202a of WRDA of 1986.
20.		GRAND MARAIS HARBOR, MN	
	Mar. 3, 1879	Breakwaters and dredging of anchorage area of 26 acres to 16 feet.	H. Ex. Doc. 75, 43 rd Cong., 2d Sess.; Annual Report, 1875, p. 184.
	Aug. 30, 1935	Seawalls across ledge in southeast corner of harbor, enlarging anchorage basin and deepening of entrance.	Rivers and Harbors Committee Doc. 22, 72d Cong., 1 st Sess. ¹
	May 17, 1950	Small boat basin with breakwater.	H. Doc. 187, 81 st Cong., 1 st Sess. ¹
21.		GREEN BAY HARBOR, WI	
	Jun. 23, 1866	Outer Channel and revetment at Grassy Island. ¹²	Annual Report, 1867, p. 70.
	Jul. 13, 1892	Inner channel. ¹³	Unpublished report approved Aug. 3, 1892.
	Jun. 26, 1910	Turning basin at DePere.	H. Doc. 222, 61st Cong., 2d Sess.
	Aug. 8, 1917	Maintenance of turning basin at DePere.	H. Doc. 1017, 64th Cong., 1st Sess.
	Mar. 3, 1925	Increasing depth of inner channel and turning basin to 18 feet.	H. Doc. 294, 68th Cong., 1st Sess.
	Aug. 30, 1935 ²	Deepen outer channel to 22 feet with widening and straightening inside of Tail Point Bend, widen channel in Fox River through city of Green Bay to 22 feet.	Rivers and Harbors Committee Doc. 40, 72d Cong., 2d Sess.
	Aug. 26, 1937	Turning basin above Chicago & North Western R.R. Bridge.	
	Mar. 2, 1945	Turning basin at mouth of East River.	Rivers and Harbors Committee Doc. 73, 74th Cong., 2d Sess.
	Oct. 23, 1962	Deepen and widen 9 miles of entrance channel to 26 by 500 feet; 3.6 miles of entrance channel to 24 by 300 feet; and 3.2 miles of existing Fox River to 24 feet deep.	H. Doc. 95, 76th Cong., 1st Sess. H. Doc. 470, 87th Cong., 2d Sess. ¹
	Nov. 17, 1986	Deepen the Fox River channel at Green Bay, WI, to 27 feet.	H.R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986,

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
			Sec. 601c).
22.	Mar. 2, 1945	HARRISVILLE HARBOR, MI Harbor of Refuge, Breakwaters; 12-foot depth entrance channel 10-foot depth in harbor basin. Extend north end of south breakwater 100 feet; extend southeast end of north breakwater 145 feet; install two navigation light structures.	H. Doc. 446, 78th Cong., 2d Sess. Sec. 107, 1960 River and Harbor Act.
23.	Aug. 30, 1852 Mar. 2, 1867 Mar. 3, 1899 Mar. 3, 1905 Jul. 3, 1930 Aug. 30, 1935 Sep. 3, 1954 ²²	HOLLAND HARBOR, MI Artificial channel between Lakes Macatawa and Michigan. ¹² Piers and Revetments. ¹² Extending Inner Piers. Converging Breakwater. Channel to Holland and Turning Basin at Holland. Present Project Dimensions of Channels at Turning Basin. Widen Bend in Revetted Entrance Channel into Lake Macatawa, Dredge Channel in Black River, and Widen and Extend Turning Basin.	S. Ex. Doc. 42, 35th Cong., 1st Sess. Annual Report, 1866, p. 106. H. Doc. 272, 51st Cong., 2d Sess.; and Annual Report 1887, p. 2950. Annual Report, 1905, p. 2176; H. Doc. 588, 69th Cong., 2d Sess. Rivers and Harbors Committee Doc. 48, 74th Cong., 1st Sess. H. Doc. 282, 83rd Cong., 2d Sess.
24.	Sep. 3, 1954 Sep. 2, 1964	THE INLAND ROUTE, MI Channel 30 feet wide and 5 feet deep through Lakes and Rivers with suitable jetties. Lock and Dam.	H. Doc. 142, 82d Cong., 1st Sess. ¹ Chief of Engineers.
25.	Mar. 3, 1899 Mar. 2, 1907 Aug. 30, 1935 ² May 17, 1950 Oct. 23, 1962 ²²	KENOSHA HARBOR, WI Parallel piers and 600 feet of breakwater. ¹² Extending Breakwater 200 feet. Present project dimensions of entrance channel and basin. Channel northwesterly from basin. Deepen lake approach channel to 27 feet and 800 feet wide; deepen approach channel to 26 feet, entrance channel and inner basin to 25 feet.	H. Doc. 328, 54th Cong., 2d Sess.; Annual Report, 1897, p. 2772; H. Doc. 164, 55th Cong., 3rd Sess.; Annual Report, 1899, p. 1817. H. Doc. 62, 59th Cong., 2d Sess. and Rivers and Harbors Committee Doc. 3, 5th Cong., 2d Sess. Rivers and Harbors Committee Doc. 19, 74th Cong., 1st Sess. H. Doc. 750, 80th Cong., 2d Sess. H. Doc. 496, 87th Cong., 2d Sess. ¹
26.	Mar. 3, 1881 Jun. 25, 1910 Aug. 30, 1935 ^{2,14} Jul. 14, 1960	KEWAUNEE HARBOR, WI Entrance piers. Turning basin. North breakwater, remove old north pier, widen and deepen entrance channel and turning basin to 20 feet and remove outer south shoal. Enlarge existing turning basin, extend existing project into north basin, and increase depth of north basin to 20 feet at a maximum width of 500 feet and eliminate removal of outer shoal.	Annual Report, 1881, p. 2082. H. Doc. 324, 60th Cong., 1st Sess. Rivers and Harbors Committee Doc. 43, 72d Cong., 1st Sess. ¹ S. Doc. 19, 86th Cong., 1st Sess. ¹

DETROIT, MI, DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
27.	Sep. 19, 1890	KEWEENAW WATERWAY, MI Acquisition of waterway; for a 16-foot channel of 70-foot bottom width, renew canal revetments, reconstruct and extend piers at upper entrance to 30-foot depth of water, and at proper time for increase of channel depth to 20 feet with bottom width of not less than 120 feet (increase in width and depth of channel approved May 15, 1898).	H. Ex. Doc. 105, 49th Cong., 2d Sess.; and Annual Report, 1887, p. 1977.
	Jun. 25, 1910	Anchorage basin just within lower entrance about one-half mile long, 800 feet wide; a mooring pier on its westerly side 2,000 feet in length, and for purchase of necessary land.	H. Doc. 325, 60th Cong., 1st Sess.
	Mar. 2, 1919	Princess Point Cutoff Channel.	H. Doc. 835, 63rd Cong., 2d Sess.
	Aug. 30, 1935 ¹⁵	General deepening, widening and straightening of channels and basins to provide 25-foot depth with additional overdepth at entrances, extend lower entrance breakwater, and necessary alteration or replacement of structures due to deepening channels.	H. Doc. 55, 73rd Cong., 1st Sess. ¹
	Nov. 17, 1986	Deauthorization of the uncompleted portion of the project authorized by the 1935 Rivers and Harbors Act.	H.R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
28.	Mar. 2, 1945	LAC LA BELLE HARBOR, MI Two parallel piers at the entrance, 584 and 682 feet; an entrance channel between the piers 50 feet wide and 12 feet deep, 820 feet long with a flared approach and inner canal 50 feet wide, 10 feet deep, and 730 feet long.	H. Doc. 446, 78 th Cong., 2d Sess. Annual Report, 1961, p. 1039.
29.		LAKE ST. CLAIR, MI, CHANNELS Two Dikes.	Annual Report, 1885, p. 2150.
	Aug. 5, 1886	Deepening Canal and dredging Channel at Grosse Pointe.	H. Doc. 297, 51st Cong., 2d Sess.
	Jul. 13, 1892	Second Canal for downbound vessels.	H. Doc. 234, 56th Cong., 2d Sess.
	Jun. 13, 1902	21-foot depth in Grosse Pointe Channel for about 5.25 miles.	H. Doc. 188, 65th Cong., 1st Sess.
	Mar. 2, 1919	25-foot depth through Canals and Channel through Lake St. Clair.	H. Doc. 253, 70th Cong., 1st Sess.
	Jul. 3, 1930	Removal of Center Dike and widening Channel to 700 feet.	Rivers and Harbors Committee Doc. 3, 72d Cong., 1st Sess.
	Aug. 30, 1933 ³		
	Mar. 21, 1956	Deepening Channel to 27.5 feet and abandonment of Channel above mouth of Southeast bend cutoff Channel.	S. Doc. 71, 84th Cong., 1st Sess. ¹
30.		LELAND HARBOR, MI Entrance Channel protected by Piers.	Rivers and Harbors Committee Doc. 23, 74th Cong., 1st Sess.
	Oct. 23, 1962	Outer Breakwater, Anchorage Area, Approach Channel and removal of North Pier.	H. Doc. 413, 87th Cong., 2d Sess.
31.		LEXINGTON HARBOR, MI Approach Channel and Maneuver Area Protected by Breakwaters. ¹	H. Doc. 301, 88th Cong., 2d Sess. ¹
32.		LITTLE LAKE HARBOR, MI 12-foot deep Channel from Lake Superior into Little	H. Doc. 446, 78th Cong., 2d Sess. ¹
	Mar. 2, 1945		

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
		Lake Breakwaters and Revetments.	
33.		LUDINGTON HARBOR, MI	
	Mar. 2, 1867	Entrance Piers.	Annual Report, 1867, p. 114. ¹⁶
	Mar. 3, 1899	Pier Extension, Reconstruction and repairs to existing structures and present project dimensions of Channel.	H. Doc. 273, 54th Cong., 2d Sess.; and Annual Report, 1897, p. 2951.
	Mar. 2, 1907	Breakwaters, Shore Connections, and Removal of outer ends of the two inner piers.	H. Doc. 62, 59th Cong., 1st Sess.; and Rivers and Harbors Committee
	Dec. 31, 1970	Deepen Channels and widen opening between breakwaters.	Doc. 3, 59th Cong., 2d Sess. ¹⁶ H. Doc. 342, 91st Cong., 2d Sess. ¹
34.		MANISTEE HARBOR, MI	
	Mar. 2, 1867	Entrance Piers.	Annual Report, 1867, p. 115.
	Sep. 19, 1890	Extending Channel 8,000 feet to connect with Manistee Lake, and further Pier extension.	Annual Report, 1891, P. 2678.
	Jul. 25, 1912	Depth of 20 feet in Outer Harbor 570 feet wide to Outer end of South Pier 18 feet deep in river, South Breakwater with shore connection, and extend North Pier if required.	H. Doc. 599, 62d Cong., 2d Sess.
	Jul. 3, 1920	23-foot depths in entrance channel and 21-foot depths in River Channel.	S. Doc. 131, 71st Cong., 2d Sess. H. Doc. 380, 77th Cong., 1st Sess.
	Mar. 2, 1945	Remove old South Revetment, Construct new South Pier and Revetment, and widen river entrance Channel.	
	Jul. 14, 1960	Present project dimensions of Channel through Outer Basin and River, and Federal participation in cost of replacing Maple Street Bridge.	H. Doc. 358, 86th Cong., 2d Sess.
35.		MANISTIQUE HARBOR, MI	
	Mar. 3, 1905	Breakwaters and Outer Harbor.	H. Doc. 429, 58th Cong., 2d Sess.
	Mar. 2, 1907	Present location of West Breakwater and Pier at River Mouth.	Annual Report, 1908, p. 648, and Unpublished Report of Mar. 13, 1908; Approved by Secretary of War, Apr. 3, 1908.
36.		MANITOWOC HARBOR, WI	
	Mar. 2, 1907	Breakwaters.	H. Doc. 62, 59th Cong., 1st Sess., as modified by Rivers and Harbors Comm. Doc. 3, 59th Cong., 2d Sess. Rivers and Harbors Committee Doc. 39, 73rd Cong., 2d Sess.
	Aug. 30, 1935 ¹⁷	Present project dimensions of channel through outer basin, removal of old north stub pier, and approach channel to a proposed city terminal south of shore end of south breakwater.	
	Aug. 26, 1937	Channel in river.	
	Oct. 23, 1962 ²⁹	Deepen Lake approach to 25 feet by 800 feet wide, deepen outer harbor to 25 feet, river channel to 23 feet to 8 th Street, and Upper River Channel to 22 feet to Soo Line R.R.	Rivers and Harbors Committee Doc. 80, 74th Cong., 2d Sess. H. Doc. 479, 87th Cong., 2d Sess.
	Dec. 31, 1968 (Sec. 107 of 1960 R & H)	Dredge River Channel to 12 feet from Soo Line R.R. 720 feet upstream.	
	Jun. 26, 1979	Construct 765-foot long stone Breakwater, and rubblemound bulkhead; construct 360-foot long entrance Breakwater; dredge 16,500 cubic yards for entrance channel.	Jun. 1967 Detailed Project Report Apr. 1982 Supplement. ¹ Sec. 107, 1960 Rivers and Harbors Act.

DETROIT, MI, DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
37.		MARQUETTE HARBOR, MI	
	Mar. 2, 1867	Breakwaters, 2,000 feet long.	H. Ex. Doc. 56, 39th Cong., 2d Sess., pts. 1 and 2; and Annual Report, 1866, pp. 8 and 77.
	Aug. 11, 1888	Extending the breakwater 1,000 feet.	Annual Report, 1889, pp. 272 and 2021.
	Jun. 25, 1910	Additional 1,500-foot extension to breakwater and removing a shoal in northerly part of harbor.	H. Doc. 573, 61st Cong., 2d Sess.
	Aug. 30, 1935	Deepening harbor to 25 feet.	Rivers and Harbors Committee Doc. 20, 72d Cong., 1st Sess.
	Jul. 11, 1960	Deepening harbor to 27 feet.	H. Doc. 154, 86th Cong., 1st Sess. ¹
38.		MENOMINEE HARBOR AND RIVER, MI AND WI	
	Mar. 3, 1871	Entrance piers.	Annual Report, 1867, p. 132.
	Jun. 13, 1902	Consolidation of project for harbor and river, and a channel 18 feet deep.	H. Doc. 419, 56th Cong., 1st Sess.
	Mar. 4, 1913	Partial restoration of work above bridge which had been eliminated by Act of May 3, 1905.	
	Jul. 3, 1930	20-foot depth in channel and 18-foot depth in turning basin.	H. Doc. 171, 70th Cong., 1st Sess.
	Aug. 30, 1935	21-foot depth in channel and turning basin and enlarge turning basin.	Rivers and Harbors Committee
	Mar. 2, 1945		Doc. 28, 73rd Cong., 2d Sess.
	Jul. 14, 1960	Extend channel 12 feet deep to vicinity of Marinette Yacht Club.	H. Doc. 228, 76th Cong., 1st Sess.
		Deepen existing approach channel to 26 feet, entrance and river channels to 24 feet and enlarge turning basin.	H. Doc. 113, 86th Cong., 1st Sess.
	Jun. 27, 1967 (Sec. 107)	Deepen 1,100 feet of river channel generally north of Marinette Corp. facilities to 19 feet.	Detailed Project Report, Dec. 1966. ¹
39.		MILWAUKEE HARBOR, WI	
	Aug. 30, 1852	North Pier. ¹²	S. Doc. 175, 25th Cong., 2d Sess.
	Mar. 3, 1883	Inner 7,600 feet of breakwater. ¹²	Annual Report, 1881, p. 2122.
	Mar. 2, 1907	South pier. Extending north breakwater 1,000 feet.	Annual Report, 1906, p. 1752 (No prior survey or estimate affecting breakwater extensions).
	Sep. 22, 1922	Extend north breakwater; a south breakwater; present project dimensions of inner entrance channel.	H. Doc. 804, 66th Cong., 2d Sess.
	Aug. 30, 1935 ²²	Dredging a portion of outer harbor to 21-foot depth.	H. Doc. 289, 72d Cong., 1st Sess.
	Mar. 2, 1945 ¹⁸	Dredging river channels to 21-foot depth.	S. Doc. 29, 76th Cong., 1st Sess.
	Jul. 14, 1960	Deepen South Menominee and Burnham Canals to 21 feet.	H. Doc. 285, 86th Cong., 2d Sess.
	Oct. 23, 1962	Deepen an approach channel to 30 feet by 800 feet wide and 300 feet wide through breakwater; deepen entrance channel 28 feet through piers, outer harbor to 28 feet south of entrance channel, and a channel to 27 feet in Milwaukee River to Buffalo Street, and in Kinnickinnic River to Chicago & North Western R.R. bridges.	H. Doc. 134, 87th Cong., 1st Sess. ¹
40.		MONROE HARBOR, MI	
	Feb. 24, 1835 ¹⁹	9-foot channel, protecting Revetments and Piers.	Annual Report, 1872, p. 237.
	Jul. 3, 1930	21-foot channel, dikes and turning basin. ²⁰	Rivers and Harbors Committee Doc. 22, 71st Cong., 1st Sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Jul. 14, 1932 ²¹	Modified Conditions of Local Cooperation imposed by Act of Jul. 3, 1930.	Rivers and Harbors Committee Doc. 12, 72d Cong., 1st Sess.; 45, 75th Cong., 1st Sess. ¹
	Nov. 17, 1986	Deepen portion of existing navigation channel to 27 feet; deepen lake channel to 28 feet; widen the channel from 200 to 500 feet; dredge a new turning basin 24 feet deep, 1,600 feet wide at river's mouth; and construct a 190 acre CDF in Plum Creek Bay to enable creation of a 700 acre marsh behind the CDF.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
41.	Jun. 13, 1902 Mar. 3, 1925 Aug. 30, 1935	MUSKEGON HARBOR, MI Piers and Revetments. Breakwaters. Repairing Revetments around Car Ferry Slip.	H. Doc. 104, 56th Cong., 2d Sess. H. Doc. 494, 67th Cong., 4th Sess. Rivers and Harbors Committee Doc. 64, 75th Cong., 1st Sess. ¹
	Oct. 23, 1962	Channel deepening and present project dimensions of channel. Piers and Revetments.	H. Doc. 474, 87th Cong., 2d Sess. ¹
42.	Oct. 23, 1962	NEW BUFFALO HARBOR, MI Entrance channel 10 feet deep by 80 to 180 feet wide and 850 feet long to mouth of Galien River, new north and south breakwaters 1,305 and 740 feet, respectively, deepening inner channel to Galien River to 8 feet and 80 feet wide and 1,250 feet long.	H. Doc. 474, 87th Cong., 2d Sess.
43.	Aug. 2, 1882	OCONTO HARBOR, WI Piers, except for inner 300 feet of south pier and 250 feet north pier built by city. ²	Annual Report, 1881, p. 2066.
	Jun. 25, 1910	Present project dimensions of channel and turning basin.	H. Doc. 538, 61 st Cong., 2d Sess., Plan C. ¹
44.	Jun. 25, 1910	ONTONAGON HARBOR, MI Channel 17 feet deep and 150 feet wide through bar and 15 feet deep and 100 feet wide between piers, and pier maintenance.	H. Doc. 602, 61st Cong., 2d Sess.
	Aug. 26, 1937	Modified project widths and provide inner basin.	S. Committee print, 74th Cong., 2d Sess.
	Oct. 23, 1962 ²⁹ Nov. 17, 1986	Enlarging and deepening the existing harbor basin. Deauthorization of the turning basin feature of the project authorized by the 1962 Rivers and Harbors Act.	H. Doc. 287, 87th Cong., 2d Sess. H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
	Jan. 3, 1996	Reauthorization of the turning basin feature which was deauthorized (Sec. 1002) in WRDA 86.	Sec. 363 (e) of WRDA 1996
45.	Mar. 2, 1867	PENTWATER HARBOR, MI Piers and revetments, dredging.	H. Ex. Doc. 70, 39th Cong., 2d Sess.
	Mar. 3, 1873	Piers and revetments, dredging.	H. Ex. Doc. 70, 39th Cong., 2d Sess. H. Ex. Doc. 70, 39th Cong., 2d Sess.
	Jul. 5, 1881	Piers and revetments, dredging.	H. Ex. Doc. 70, 39th Cong., 2d Sess.
	Jul. 13, 1892	Piers and revetments, dredging.	H. Doc. 181, 39th Cong., 2d Sess. ¹
	Mar. 25, 1907	Present project depth of channel.	
46.		POINT LOOKOUT HARBOR (AU GRES RIVER),	

DETROIT, MI, DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Mar. 2, 1945	MI Breakwaters, Anchorage Area, Channel Dredging.	H. Doc. 446, 78 th Cong., 2d Sess.
47.	Mar. 2, 1945 Jul. 16, 1984 Jul. 11, 1987	PORT AUSTIN HARBOR, MI Breakwater, Anchorage Basin, Channel Dredging. Construct a breakwater access for recreation purposes. Breakwater.	H. Doc. 446, 78 th Cong., 2d Sess. H. R. 5653, 98 th Cong., 2d Sess. P. L. 98-360 (98Stat. 405) Sec. 106 P. L. 100-71.
48.	Mar. 2, 1945	PORT SANILAC HARBOR, MI Entrance Channel 12 feet deep, Anchorage Basin, Breakwater.	H. Doc. 446, 78th Cong., 2d Sess.
49.	Jul. 11, 1870 Aug. 14, 1876 Aug. 30, 1935 ²⁷ Jul. 3, 1958 ²⁸ Jan. 3, 1996	PORT WASHINGTON HARBOR, WI North pier and south basin. ¹² North basin. North breakwater, removal of 650 feet of north pier, outer turning basin, present project dimensions of channel and basin and extension of south breakwater. Extending and raising of north breakwater and placing rubble along sides; removing 456 feet of south breakwater and dredging in outer basin. Deauthorization of portion of the navigation project.	H. Ex. Doc. 28, 41st Cong., 2d Sess. and Annual Report, 1879, p. 119. Annual Report, 1876, pt. 2, p. 379. H. Doc. 168, 72d Cong., 1st Sess. and Rivers and Harbors Committee Doc. 41, 74th Cong., 1st Sess. H. Doc. 446, 83rd Cong., 2d Sess. ¹ Sec. 501(17) of WRDA of 1996.
50.	Jun. 13, 1902 Jun. 30, 1948 Aug. 5, 1977	PORT WING HARBOR, WI Construction of parallel piers and dredging. Dredging inner channels and abandonment of certain revetments and channels. Deauthorization of 50 feet of entrance channel widening.	H. Doc. 114, 56th Cong., 1st Sess. H. Doc. 668, 80th Cong., 2d Sess.
51.	Mar. 3, 1879	PORTAGE LAKE HARBOR, MI Entrance channel 18 feet deep protected by piers and revetments.	Annual Report 1879, p. 1634 ³⁰
52.	Aug. 8, 1917 Aug.30, 1935 ^{2,24,25} Jul. 3, 1958 ² Oct. 23, 1962 ²	ROUGE RIVER, MI 21-foot channel via the Shortcut Canal 25-foot channel at mouth of Old Channel, 1,425 feet long and adjacent to latter; 21-foot channel extending from junction of Old Channel and Shortcut Canal into Old Channel to Detroit, Toledo & Ironton R.R. Bridge. Old Channel; 100 feet wide from Peerless Cement Corp. To Junction with Shortcut Canal widened to 150 feet at 2 bends. 25-foot channel over modified limits from Detroit River to Jefferson Avenue (via Shortcut Canal).	H. Doc. 1063, 64th Cong., 2d Sess. ²³ H. Doc. 125, 85th Cong., 1st. Sess. H. Doc. 509, 87th Cong., 2d Sess. ¹
53.	Jun. 25, 1910	SAGINAW RIVER, MI Channel 200 feet wide, with depth of 18.5 feet in Bay and 16.5 feet in River. Project Depth of 18.5 feet extended up River to	H. Doc. 740, 61st Cong., 2d Sess. Rivers and Harbors Committee

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	ul. 3, 1930	Saginaw.	Doc. 30, 71st Cong., 2d Sess.
	Aug. 26, 1937	Turning Basin.	Rivers and Harbors Committee
			Doc. 21, 75th Cong., 1st Sess.
	Jun. 20, 1938	Present project channel dimensions from Bay to Sixth Street Bridge in Saginaw.	H. Doc. 576, 75th Cong., 3rd Sess.
	Sep. 3, 1954	New Channel in Bay, 350 feet wide and 24 feet deep from 24-foot contour to River Mouth, Project Depth of 24 feet in River Channel up to Detroit & Mackinac Railway Bridge, Project Depth of 22 feet in River Channel up to Sixth Street Bridge, Turning Basins at Essexville and Carrollton, and elimination of present Channel in Bay.	H. Doc. 500, 83rd Cong., 2d Sess.
	Oct. 23, 1962	Deepen Bay Channel, Deepen River Channel to Detroit & Mackinac Bridge, Extend 22-foot project above Sixth Street Bridge, Deepen Essexville Turning Basin, and Construct 2 new Turning Basins. ³	H. Doc. 554, 87th Cong., 2d Sess.
	Oct. 27, 1965	Deepen River Channel to 25 feet, from Detroit & Mackinac Bridge to New York Central Railroad Bridge.	H. Doc. 240, 89th Cong., 1st Sess. ¹
54.		ST. CLAIR RIVER, MI	
	Jul. 13, 1892	20-foot Channel in the River.	H. Doc. 207, 51st Cong., 2d Sess.
	Jul. 8, 1930	Deepen Channel to 25 and 26 feet, and Compensating Works.	H. Doc. 253, 70th Cong., 1st Sess.
	Mar. 2, 1945	Widening Channel at Southeast Bend to 700 feet.	H. Doc. 309, 77th Cong., 1st Sess.
	Jul. 24, 1946 ²²	Widen and deepen Southeast Bend and improve Outlet of North Channel, St. Clair River.	H. Doc. 335, 80th Cong., 1st Sess.
	Mar. 21, 1956 ²²	Deepen and further improve Channels in St. Clair River between limits of 27.1 to 30 feet to provide safe navigation by vessels with drafts of 25.5 feet. A cutoff Channel in Canada at Southeast Bend and abandon old Southeast Bend Channels.	S. Doc. 71, 84th Cong., 1st Sess.
	Nov. 17, 1986	Deauthorization of the work authorized by the Rivers and Harbors Act of Jul. 24, 1946.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
55.		ST. JOSEPH HARBOR, MI	
	Mar. 3, 1875	Interior Revetments. ²⁶	H. Ex. Doc. 160, 43rd Cong., 2d Sess., and Annual Report, 1875, pt. 1, p. 162.
	Jun. 14, 1880	Benton Harbor Canal. ²⁶	Annual Report, 1880, pp. 2030, 2031, 2049, and 2055.
	Mar. 3, 1899	Present project dimensions of piers and a turning basin.	H. Doc. 307, 55th Cong., 2d Sess., and Annual Report, 1898, p. 2496.
	Aug. 30, 1935	Present project dimensions of the channel and turning basin near mouth of Paw Paw River.	Rivers and Harbors Committee
	Jun. 2, 1937	Abandon easterly 1,000 feet of canal above west line of 9th Street.	Doc. 52, 74th Cong., 1st Sess.
	Mar. 2, 1945	Turning basin above mouth of Morrison Channel and eliminate turning basin near mouth of Paw Paw River.	H. Doc. 129, 76th Cong., 1st Sess.
	Jul. 3, 1958	Maintenance of turning basin near mouth of Paw Paw River.	S. Doc. 95, 84th Cong., 2d Sess. ¹
56.		SAUGATUCK HARBOR AND KALAMAZOO	

DETROIT, MI, DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
		RIVER, MI	
	Jun. 3, 1896	Entrance Channel, Piers and Revetments.	H. Doc. 912, 54th Cong., 1st Sess.; Annual Report, 1896, Vol. 2, Pt. 5, p. 2739.
	Mar. 2, 1907	Deepening entrance to 16 feet.	Annual Report, 1907, p. 6416.
	Jun. 25, 1910	Deepening Channel in River to 14 feet.	H. Doc. 635, 61st Cong., 2d Sess.
57.		SAXON HARBOR, WI	
	Jul. 3, 1958	Provides for east and west breakwaters, an outer channel 10 feet deep, an inner basin and side channel 8 feet deep, and a diversion of Oronto Creek to Parkers Creek by 3 short reaches of channel excavation and a levee.	River and Harbors Act, H. Doc. 169, 85 th Cong., 1st Sess., ¹ Annual Report for 1965, p. 1025.
58.		SEBEWAING RIVER, MI	
	Jun. 3, 1896	Entrance Channel 8 feet deep, 100 feet wide and 15,000 feet long in Saginaw Bay.	H. Doc. 71, 54th Cong., 1st Sess.
59.		SHEBOYGAN HARBOR, WI	
	Mar. 2, 1907	North breakwater.	H. Doc. 62, 59th Cong., 1st Sess.
	Jan. 21, 1927	Preserving south pier as part of project, providing turning basin, and elimination of proposed south breakwaters.	H. Doc. 475, 68th Cong., 2d Sess.
	Aug. 30, 1935	Present project dimensions of channel.	Rivers and Harbors Committee Doc. 47, 74th Cong., 1st Sess.
	Sep. 3, 1954	Widen and deepen outer harbor entrance channel to 450 feet, widen and deepen river channel from present project limit to north side of Jefferson Avenue.	H. Doc. 554, 82d Cong., 2d Sess. ¹
60.		SOUTH HAVEN HARBOR, MI	
	Aug. 11, 1888	Channel from Inner End of Piers to Highway Bridge. ¹²	No Prior Survey or Estimate.
	Mar. 3, 1905	Present dimensions of Piers and for a Turning Basin.	H. Doc. 119, 58th Cong., 2d Sess.
	Aug. 30, 1935	Present project dimensions of Channel and Turning Basin.	Rivers and Harbors Committee Doc. 9, 73rd Cong., 1st Sess. ¹ and Unpublished review Report of Chief of Engineers, dated Dec. 21, 1934.
	Oct. 31, 1992	Turning Basin deauthorized.	Public Law 102-580 (Section 116 of WRDA of 1992).
61.		STURGEON BAY AND LAKE MICHIGAN SHIP CANAL, WI	
	Mar. 3, 1873	Breakwaters. ¹²	H. Ex. Doc. 34, 42d Cong., 2d Sess.; Annual Report, 1872, p. 171.
	Jul. 13, 1892	Acquisition of the canal.	H. Ex. Doc. 106, 49th Cong., 2d Sess.
	Jun. 13, 1902	Canal revetments and consolidation of canal and harbor works.	H. Doc. 117, 56th Cong., 2d Sess.
	Aug. 30, 1935	Present project dimensions of channels and elimination of turning basin immediately west of revetted canal.	Rivers and Harbors Committee Doc. 9, 74th Cong., 1st Sess.
	Mar. 2, 1945	Turning basin between city and Bushman wharves.	H. Doc. 421, 78th Cong., 2d Sess.
62.		TWO RIVERS HARBOR, WI	
	Mar. 3, 1871	South pier, 750 feet of north pier, and about 44 feet of north revetment. ¹²	Annual Report, 1871, p. 123 (as modified by Chief of Engineers, Feb. 27, 1897).
	Mar. 2, 1907	Remainder of north pier and stilling basin.	H. Doc. 730, 59th Cong., 1st Sess.,

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Aug. 30, 1935 ²²	Deepening entrance channel and inner basin to 18 feet.	Modification of Plan A. Rivers and Harbors Committee Doc. 25, 73rd Cong., 2d Sess.
	Jul. 3, 1958	Extend existing project in West Twin River to 18 feet deep and in East Twin River to 10 feet deep to 22nd Street Bridge.	H. Doc. 362, 84th Cong., 2d Sess. ¹
63.		WHITE LAKE HARBOR, MI	
	Mar. 2, 1867	New Channel, with Piers and Revetments.	Unpublished Survey Report of 1868.
	Mar. 3, 1873		Unpublished Survey Report of 1868.
	Jul. 5, 1884	New Channel, with Piers and Revetments.	Unpublished Survey Report of 1868.
	Jul. 13, 1892		No Prior Survey or Estimate. ³¹
	Mar. 2, 1907	New Channel, with Piers and Revetments.	
		New Channel, with Piers and Revetments.	
		Present project depth of Channel.	
72.		CLINTON RIVER SPILLWAY, MI	
	Jul. 24, 1946	Construction of a cutoff canal with control weirs.	H. Doc. 694, 79th Cong., 2d Sess. ¹
	Nov. 5, 1990	Completed project review due to significantly changed physical conditions.	Section 216 Reconnaissance Report, September 1991.
73.		FORT WAYNE METRO AREA, IN	
	Oct. 30, 1990	Provides 100-year level of flood protection to part of Central area of city of Fort Wayne, IN.	Public Law 101-640 (Section 101 of WRDA of 1990)
74.		SAGINAW RIVER, MI, FLOOD CONTROL	
	Jul. 3, 1958	Flood control improvements to Saginaw River and its tributaries including Tittabawassee, Shiawassee, Flint, and Cass Rivers.	H. Doc. 346, 84th Cong., 2d Sess. ¹
	Aug. 17, 1991	One-time O&M repairs at Flint Unit to restore project to original dimensions.	Energy and Water Development Appropriation Act of 1992, (P.L. 102-104).
	Oct. 8, 1992	Provides funding for continuing O&M repairs at Flint Unit.	
	Jan. 3, 1996	Project is modified to include as part of the project the design and construction of an inflatable dam.	Energy and Water Resources Appropriation Act of 1993, H.R. 5373, (P.L. 102-377). Sec. 329 of WRDA 1996.
75.		SEBEWAING RIVER, MI	
	Aug. 18, 1941	Enlarging present Channel of Sebewaing River, altering Railroad and Highway Bridges, removal of Dike.	H. Doc. 286, 76th Cong. 1st Sess. ¹
80.		ST. MARYS RIVER, MI	
	Jul. 11, 1870	Weitzel Lock (Replaced in 1943 by MacArthur Lock), widen and deepen existing State Channel. ²⁶	Report by Maj. O.M. Poe, Corps of Engineers, not published.
	Aug. 5, 1886	Poe Lock. ¹	H. Ex. Doc. 72, 49th Cong., 2d Sess.
	Jul. 13, 1892	Dredging through shoals above falls and shoals below falls between lower end of Canal and upper entrance Channel into Lake Nicolet (formerly Hay Lake).	H. Ex. Doc. 207, 51st Cong., 2d Sess., and Annual Report, 1891, p. 2810.
	Jun. 13, 1902	Enlarging the Old Channel.	H. Doc. 138, 56th Cong., 2d Sess., and 215, 58th Cong., 3rd Sess.
	Jun. 13, 1902	Lake Nicolet and Neebish Channels work in that section of River below Locks.	H. Doc. 128, 56th Cong., 2d Sess.
	Mar. 2, 1905		H. Doc. 215, 56th Cong., 3rd Sess.
	Mar. 3, 1907	Davis Lock Second Canal, and Emergency Dam.	H. Doc. 333, 59th Cong., 2d Sess.

DETROIT, MI, DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Mar. 3, 1909	Lease of Waterpower at Falls, Lease entered into with Michigan Northern Power Company provided for construction of remedial and compensating works.	(Plan 3).
	Jul. 25, 1912	Fourth Lock (Renamed 'Sabin' Lock in 1943).	H. Doc. 65, 62d Cong., 1st Sess.
	Mar. 4, 1915	Deepen Tailrace of Power Plant.	
	Sep. 22, 1922	Widen upper approach to Canals through Vidal Shoals, extend anchorage and maneuver area below locks.	District Engineer Report, Oct. 29, 1920.
	Jan. 21, 1927	Remove Round Island, middle ground extension of Northwest Canal Pier, and widen Channels Middle Neebish Route.	H. Doc. 270, 69th Cong., 1st Sess.
	Jul. 3, 1930	Deepen Channels throughout downbound Route.	H. Doc. 253, 70th Cong., 1st Sess.
	Jun. 26, 1934 ⁹	Operation and Care of Canal and Locks provided from War Department Appropriations for Rivers and Harbors.	
	Aug. 30, 1935	Widen Brush Point Turn and Channel from Brush Point to Point Louise.	Rivers and Harbors Committee Doc. 53, 74th Cong., 1st Sess. H. Doc. 218, 77th Cong., 1st Sess.
	Mar. 7, 1942	Construct new (MacArthur) Lock on site of former Weitzel Lock, deepen approach Channels to 27 feet, and reconstruct approach Piers.	
	Jun. 15, 1943	Name 'MacArthur' Lock and changed name of 'Fourth' Lock to 'Sabin' Lock.	
	Mar. 2, 1945	Remove Bridge Island and construct new Hydroelectric Power Plant.	H. Doc. 679, 78th Cong., 2d Sess., And 339, 77th Cong., 1st Sess.
	Jul. 24, 1946	Replace Poe Lock at St. Marys Falls Canal with a new structure 800 feet long, 100 feet wide and 32 feet deep with necessary construction of Nose and Center Piers, and widen and deepen Channel across Point Iroquois Shoals and in Lake Nicolet to provide wider anchorage and maneuver areas in St. Marys River.	H. Doc. 335, 80th Cong., 1st Sess.
	Mar. 21, 1956	Deepen to provide a Project Safe Draft of 25.5 feet over full width to downbound and 2-way Channels (including anchorage areas) and over Westerly 300-foot width of upbound Middle Neebish Channel, when levels of Lakes Superior and Huron are at their respective	S. Doc. 71, 84th Cong., 1st Sess. ¹
	Jul. 9, 1956	LWD's.	None.
	Nov. 17, 1986	Repeal Authorization of Bridge as a part of Project, authorize alteration with cost to be apportioned by Sec. 6, Truman Hobbs Act, Jun. 21, 1940. Construct a second large lock 1,294 feet in length, 115 feet in width, and 32 feet in depth, adjacent to the existing lock. The replacement lock is to be located in the North Canal of the St. Marys Falls Canal at Sault Ste. Marie, MI, on the site of the existing Davis and Sabin Locks.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).

¹Contains latest published map.

²Including Emergency Relief Administration Work authorized May 28, 1935.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

³Included in Public Works Administration Program
September 6, 1933.

⁴This modification deauthorized August 5, 1977, under
Section 12, Public Law 93-251.

⁵Administrative Act, Section 4.

⁶Public Law 568, 82d Congress.

⁷Public Law 388, 87th Congress.

⁸This portion inactive.

⁹Permanent Appropriations Repeal Act.

¹⁰Transfer completed June 1962.

¹¹Amended 1868, 1879, 1892.

¹²Completed under previous project.

¹³Included in Public Works Administration Program January
3, 1934.

¹⁴Inactive portion; removal of 200 linear feet of north pier,
widening inner 200 feet of channel through outer basin, and
closing gap in north shore connection of breakwater.

¹⁵Latest published map is in Annual Report, 1914, p. 2974.

¹⁶Latest published map in Annual Report, 1914, p. 2914.

¹⁷Superseded by Act of October 23, 1962.

¹⁸Uncompleted portion was deauthorized in 1977 (dredging
Milwaukee River from Buffalo Street Bridge to North
Humboldt Avenue Bridge).

¹⁹Modified by Act of June 10, 1872.

²⁰Riprapping of protecting dikes portion of project is
inactive.

²¹War Department Appropriations Act.

²²Uncompleted portion deauthorized December 31, 1989,
under Section 1001, P.L. 99-662.

²³Contains latest published maps. See also map with Rivers
and Harbors Committee Doc. 19, 72d Cong., 1st Sess.

²⁴Except for dredging 25-foot channel to 1,150 feet upstream
of mouth of old channel, work authorized in this Act is
considered inactive.

²⁵This modification deauthorized August 5, 1977, under
Section 12, Public Law 93-251.

²⁶Completed under previous projects. Public Law 130, 75th
Cong., 1st Sess.

²⁷Work recommended in H. Doc. 588, 64th Cong., 1st Sess.

²⁸Deauthorized in 1977.

²⁹This modification deauthorized December 31, 1989, under
Section 1001, P.L. 99-662.

³⁰Latest published map is in H. Doc. 588, 64th Cong., 1st
Sess.

³¹Latest published map is in H. Doc. 2053, 64th Cong., 2d
Sess.

DETROIT, MI, DISTRICT

TABLE 21-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2001	
			Construction	Operation & Maintenance
Alternative Technology Project, Duluth	Active	----	0	609,199
Bayfield Harbor, WI	Completed	1979	183,855	165,949
Bell River, MI	Completed	1980	24,301	133,308
Beaver Bay, MN	Active	1982	293,000	2,818
Black River (Icona Co), MI	Inactive	1907	0	878
Bolles Harbor, MI	Completed	1996	472,916	3,647,940
Channels in Straits of				
Mackinac, MI	Completed	1991	2,832,629	263,180
Cheboygan Harbor, MI	Completed	1998	504,236	1,043,297
Chippewa Harbor, Isle Royale, MI	Completed	1959	125,629	17,829
Cross Village, MI	Active	1983	364,000	0
DeTour Harbor, MI	Completed	1989	2,559,346	165,605
Eagle Harbor, MI	Completed	1996	205,164 ¹	134,903
Grand Marias Harbor, MI	Completed	1998	1,055,871	2,643,031
Grand Marais Harbor, MN	Completed	1996	450,972	2,389,569
Grays Reef Passage, MI	Completed	1970	190,521	852,757
Hammond Bay Harbor, MI	Completed	1998	1,092,366	1,068,148
Knife River Harbor, MN	Completed	1999	528,945	315,561
Les Cheneaux Island Channels, MI	Completed	1980	399,478	368,060
Little Bay De Noc, Gladstone Harbor, MI	Completed	1966	332,832	105,634
Lutsen Harbor, MN	Active	1982	357,000	0
Mackinac Island Harbor, MI	Completed	1989	334,089	1,816,628
Mackinaw City Harbor, MI	Completed	1986	136,286 ²	120,121
Northport Harbor, WI	Inactive	----	0	0
Pensaukee Harbor, WI	Completed	1996	34,035	679,767
Pine River, MI	Completed	1980	13,649	97,942
Port Austin Harbor, MI	Completed	1998	3,363,334	2,082,777 ³

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Presque Isle Harbor, MI	Completed	1998	1,252,192	1,936,642 ⁴
Silver Bay Harbor, MN	Completed	1999	2,600,000	0
St. James, Beaver Island, MI	Completed	1957	49,171 ⁵	573,305
St. Joseph River, MI	Completed	1975	54,555	19,185
Tawas Bay Harbor, MI	Completed	1996	2,110,745	98,108
Two Harbors Harbor, MN	Completed	1998	4,170,710 ⁶	5,252,461
Washington Island, WI	Completed	1950	62,838	107,336

¹ Excludes \$27,800 for previous projects.

² Excludes \$210,500 Contributed Funds.

³ Includes \$159,000 for Diked Disposal.

⁴ Includes \$16,500 for Diked Disposal.

⁵ Excludes \$7,500 Contributed Funds.

⁶ Includes \$48,404 Nat'l Recovery Act.

DETROIT, MI, DISTRICT

TABLE 21-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Cost to Sep. 30, 2001

Project	Status	For Last Full Report See Annual Report for	Construction	Operation & Maintenance
Kawkawlin River, MI ^{1,2}	Completed	1999	1,000,000	470,500
Kalamazoo River (Battle Creek) MI ^{3,4}	Deferred	1975	4,471,235	----
Paw Paw Lake, MI	Completed	1989	3,589,000	----
Upper River Rouge, MI ⁵	Inactive	1968	7,935	----
River Rouge, MI	Completed	1981	31,960,332	----

¹Excludes \$204,559 Contributed Funds.

²Excludes 228,748 Contributed Funds.

³Includes \$108,335 Contributed Funds.

⁴Uncompleted portion deauthorized Dec. 31, 1989, in accordance with Section 1001 of the W.R.D.A. of 1986 (PL 99-662).

⁵Planning indefinitely suspended due to lack of local cooperation.

**TABLE 21-F MULTIPLE PURPOSE PROJECTS, INCLUDING POWER
ST. MARYS RIVER, MI: EXISTING PROJECT
(SEE SECTION 80 OF TEXT)**

Lock	Davis	Sabin	MacArthur	New Poe
Miles Above Mouth	47	47	47	47
Clear Width of Chamber Feet	80	80	80	110
Length Between Gate Quoins Feet	1,350	1,350	800	1,200
Lifts Feet	21.7	21.7	21.7	21.7
Depth Over Upper Breast Walls ¹ Feet	24.3	24.3	31	32
Depth Over Lower Breast Walls ¹ Feet	23.1	23.1	31	32
Foundation	Rock	Rock	Rock	Rock
Type of Construction	Concrete	Concrete	Concrete	Concrete
Estimated Cost	\$6,200,000 ²	\$3,275,000 ³	\$12,909,440	\$39,000,000
Actual Cost	\$2,200,000 ⁵	\$1,750,000 ⁶	\$12,718,806 ^{4,7}	\$34,813,066
Completed (Open to Commerce)	Oct. 21, 1914	Sep. 18, 1919	Jul. 11, 1943	Jun. 26, 1969
Emergency Dam for	South Canal		North Canal	
Miles Above Mouth	47		47	
Estimated Cost	- ⁹		\$300,000	
Type	Steel Stoplogs Recessed Into Lock Masonry		Steel Stoplogs Recessed Into Lock Masonry	
Cost Completed	- ⁹		\$169,224 ⁸	
Year Completed	1943		1922 (Modified 1963)	

¹At low water datum 600.6 above and 578.4 below.

⁶Excludes cost of canal excavation to provide necessary approaches to lock, canal walls, piers, and emergency dam, \$662,919.

²Includes cost of North Canal.

⁷Excluding cost of lower guard gates which were never installed.

³Includes cost of canal excavations to provide necessary approaches to lock, canal walls, piers, and emergency dam, \$662,919.

⁸Including engineering office and inspection.

⁴Excludes cost of deepening and enlarging South Canal, \$1,653,378.

⁹Not separate from cost of locks.

⁵Excludes cost of North Canal, \$2,572,611.

Note: Limiting draft to locks is determined by depth over breast walls.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-G

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Beaver Bay, MN (Mar. 2, 1945 R&H Act)	1982	Jul 1995	295,818	0
Berrien County, MI (St. Joseph Shore) beach erosion control (1958 Flood Control Act)	1963	Nov 1986	0	0
Black River Harbor, Alcona County, MI (Authorized Dec. 17, 1979, under Section 201 of the 1965 Flood Control Act)	1971	Dec 1989	0	0
Black River Harbor, MI (Aug. 30, 1935 R&H Act)	1976	Nov 1977	0	0
Detroit River, Trenton Chnl., MI (May 17, 1950 R&H Act)	1976	Aug 1977	0	0
Detroit River, Trenton Chnl., MI (Uncompleted portion) (Aug. 13, 1968 R&H Act)	1976	Dec 1989	159,300,000	0
Duluth-Superior Inner Harbor, MN and WI (Jul. 14, 1960 R&H Act)	1990	Dec 1989	14,562,100	0
Forestville Harbor, MI (1968 R&H Act)	1969	Nov 1986	0	0
Grand Haven Harbor, MI (Mar. 2, 1945 R&H Act)	1976	Nov 1977	0	0
Grand River at Grandville, MI (Oct. 27, 1965 Flood Control Act)	1966	Nov 1977	0	0
Great Lakes Connecting Channels, MI ¹ (Uncompleted portion) (R&H Acts of 1946 and 1956)	1990	Dec 1989	93,993,349	0
Green Bay Harbor, Brown County, WI (1962 Modification)	1999	April 1999	4,030,000	1,970,000
Harbors of Washington Island, WI (R&H Act of 1937)	1950	Dec 1989	62,838	0
Holland Harbor Entrance Channel, MI (Uncompleted portion) (Sep. 3, 1954 R&H Act)	1962	Dec 1989	0	0
Kalamazoo River, Battle Creek, MI (Uncompleted portion) (1954 Flood Control Act)	1975	Dec 1989	6,656,668	108,332
Kalamazoo River, Kalamazoo, MI (Jul. 3, 1958 Flood Control Act)	1975	Dec 1989	416,822	0

For Last

DETROIT, MI DISTRICT

TABLE 21-G (Continued)

DEAUTHORIZED PROJECTS

Project	Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Kenosha Harbor, WI (Uncompleted portion) (Oct. 23, 1962 R&H Act)	1990	Dec 1989	552,000	43,000
Kewaunee River, WI (1960 R&H Act)	1976	Aug 1977	0	0
Lansing (Grand River), MI (Jul. 3, 1958 Flood Control Act)	1971	Jun 1981	7,000	0
Lower Fox River, WI (Uncompleted portion) (Mar. 3, 1925 R&H Act)	1990	Dec 1989	3,753,334	0
Lutsen Harbor, MN (Mar. 2, 1945 R&H Act)	1990	Jul 1995	357,000	0
Manitowoc Harbor, WI (Oct. 23, 1962 R&H Act)	1990	Dec 1989	0	0
Milwaukee Outer Harbor, WI (Uncompleted portion) (R&H Act of 1935)	1990	Dec 1989	6,937,804	478,000
Northport Harbor, WI (Authorized in 1972 under Section 201 of the 1965 Flood Control Act)	--	Dec 1989	132,000	0
Ontonagon Harbor, MI (R&H Act of 1962)	1990	Dec 1989	27,482	0
Pentwater Harbor, MI (Jul. 13, 1892 R&H Act)	1976	Nov 1977	0	0
Racine Harbor, WI (Mar. 2, 1907; Aug. 26, 1937; and Mar. 2, 1945 R&H Acts, and Section 107 of the 1960 R&H Act)	1963	May 1986	9,441,554	0
Red Run Drain, Lower Clinton River, MI (1970 Flood Control Act)	1983	Nov 1986	3,823,000	0
Rogers City Harbor, MI (Jun. 25, 1910 R&H Act)	1926	Aug 1977	5,892	0
Rouge River, MI (Oct 23, 1962 R&H Act)	1976	Aug 1977	22,000	0
Rouge River, MI (Jul. 3, 1958 R&H Act)	1976	Aug 1977	12,000	0
Rouge River, MI (Aug. 30, 1935 R&H Act)	1976	Aug 1977	0	0
Saginaw River, MI (Midland on Tittabawassee River)	1983	May 1997	5,125,000	1,611,500
St. Clair River Compensating Works, MI Jul. 3, 1930 R&H Act)	1976	Aug 1977	0	0

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-G (Continued)

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
South Milwaukee Harbor, WI (1836 Flood Control Act)	1906	Aug 1977	0	0
St. Marys River (MacArthur Lock Guard Gates), MI (Mar. 7, 1942 R&H Act)	1977	Oct 1978	0	0
Two Rivers Harbor, WI (Uncompleted portion) (Aug. 30, 1935 R&H Act)	1990	Dec 1989	147,463	0

¹Includes Detroit and St. Clair Rivers.

DETROIT, MI, DISTRICT

TABLE 21-H FEATURES OF EXISTING PROJECT

Name of Channel	Length of Channel (Feet)	Miles from River Mouth	Upbound or Down- bound Vessels	Project Width (Feet)	Project Depth (Feet)	Project Datum Planes IGLD 1985 (Feet)	Year Com- plete
DETROIT RIVER, MI (SEE SECTION 15 OF TEXT)							
Channel north of Belle Isle ¹	---	30	Both	200	21.0	571.9	1964
Channel at head of Detroit River	38,800	32	Both	800	28.5	572.1-571.5	1964
Misc. shoals and obstructions	44,500	25	Both	---	28.5	571.5-570.9	1964
Belle Isle to Fighting Island Channel							
Fighting Island Channel	24,800	17	Both	800	28.5	570.4	1962
Ballards Reef Channel north of Junction with Livingstone Channel	12,200	12	Both	600	28.5	570.4	1964
Livingstone Channel Upper	26,000	10	Down	450	27.7	570.4-569.2	1964
Livingstone Channel Lower:							
CS 260+00 to 368+87	10,887	5	Down	450-800	29.0	569.2	1961
CS 368+87 to 492+00	12,313	---	Both	800-1,200	29.0	569.2	1961
East Outer Channel	42,000	---	Both	1,200	28.5	569.2	1964
Misc. shoals and obstructions, Detroit River to Pelee Passage	---	---	Both	---	28.5-29.5 ³	569.2	1964
Pelee Passage Shoal	---	---	Both	---	29.5	569.2	---
Amherstberg Channel:							
Upper Section, Ballards Reef Channel	6,500	10	Up	600	27.5	570.4-570.1	1960
Middle Section	12,000	---	Up	600	21-27.5 ⁴	570.1-569.5	1960
Lower Section, Hackett Range	24,000	---	Up	600	21-28.5 ⁵	569.5-569.2	1960
West Outer Channel	21,000	---	Down	800	22.0	569.2	1929
Trenton Channel:							
Wyandotte Reach	31,500	17	Local	300	27.0		1964 ⁶
Trenton Channel (Upper)	5,100	---	Local	300	28.0	570.3-570.2	1964
Trenton Reach (Lower)	600	---	Local	250-300	28.0	570.2-569.4	1941
Grosse Ile Shoal	600	14	Local	---	20.0	570.4	1904
ST. CLAIR RIVER, MI (SEE SECTION 54 OF TEXT)							
Channel at foot of Lake Huron	26,500	44	Both	800	30.0	577.5-577.1	1961
Channel north of Blue Water Bridge	4,100	39	Both	800	30.0	577.1-576.5	1962
Port Huron to Stag Island:							
Widening at Upper and Lower Ends of Stag Island	38,000	38	Both	1,000-	27.4	577.1-575.3	1961
St. Clair to Russell Island	37,600	31	Both	1,400	27.3	575.3-574.3	1962
Russell Island to Southeast Bend	77,000	24	Both	900-1,000	27.3	574.3-572.6	1962
Southeast Bend:	20,600	11	Both	1,000	27.2	572.6-572.3	1962
CS 324+00 to 250+00				700-1,000			
Cutoff Channel	7,400	5	Both		27.1	572.3-572.2	1962
North Channel Outlet	30,300	---	Both	700	27.1	572.2	1962
	8,000	---	Small Craft	700 100	10.0	572.2	---

¹This is a side channel.

²Extends from deep water near Windmill Point to a point opposite Fairview Slip, about 3,000 feet.

³Project depth 29.5 feet over Rock Shoals and 28.5 feet over other than Rock Shoals.

⁴Project depth 21 feet in easterly 300-foot width of channel and 27.5 feet in westerly 300-foot width.

⁵Project depth 21 feet in easterly 300-foot width of channel and 28.5 feet in westerly 300-foot width.

⁶Project complete except for work authorized by Rivers and Harbors Act of 1950.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 21-I

FOX RIVER, WI: LOCKS AND DAMS (SEE SECTION 17 OF TEXT)

Name of Lock and Dam	Miles from Green Bay	Nearest Town	Distance (miles)	Clear Width (feet)	Depth at Normal Pool		Breast Wall ¹ (feet)	Lower Miter Sill (feet)	Character of Foundation	Kind of Dam	Type of Construction	Year Complete	Actual Cost
					Available Length (feet)	Lift (feet)							
DePere lock ²	7.1	DePere	---	36.0	146.0	8.9	10.3	12.0	Rock	---	Concrete	1936	\$229,308
DePere dam ²	7.2	DePere	---	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1929	209,536
Little Kaukauna lock ²	13.0	DePere	6	36.0	146.0	7.2	8.0	9.5	Clay	---	Concrete	1938	362,427
Little Kaukauna dam ²	13.1	DePere	6	---	---	---	---	---	Clay & Gravel	Fixed ^{3,4}	Piers and concrete	1926	179,398
Rapide Croche lock ²	19.2	Wrightstow	2	36.0	146.0	8.3	8.8	9.3	Rock	---	Concrete	1934	228,738
Rapide Croche dam ²	19.3	Wrightstow	2	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1930	118,975
Kaukauna fifth lock ²	22.8	Kaukauna	---	35.6	144.0	9.1	6.7	9.3	Rock	---	Composite	1898	13,310 ⁵
Kaukauna fourth lock ²	23.1	Kaukauna	---	36.6	144.1	10.2	6.9	6.0	Rock	---	Stone masonry	1879	37,536
Kaukauna third lock ²	23.3	Kaukauna	---	30.6	144.0	10.2	6.9	6.3	Rock	---	Stone masonry	1879	39,948
Kaukauna second lock ²	23.4	Kaukauna	---	35.0	144.0	9.6	6.0	6.0	Rock	---	Stone masonry	1903	24,313
Kaukauna first lock ²	23.6	Kaukauna	---	35.1	144.4	11.0	6.9	6.0	Rock	---	Stone masonry	1883	38,704
Kaukauna dam ²	24.0	Kaukauna	---	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1931	123,763
Kaukauna guard lock	24.0	Kaukauna	---	40.0	---	---	9.4	---	Rock	---	Stone masonry	1891	12,630
Little Chute combined lock:													
Lower	24.4	Little Chute	1	35.4	146.5	10.9	6.0	8.6	Rock	---	Stone masonry	1879	102,304
Upper	25.4	Little Chute	1	36.3	144.1	10.6	7.6	6.0	Hardpan	---	Stone masonry	1879	---
Little Chute second lock ²	26.4	Little Chute	---	35.0	144.2	13.8	8.0	6.1	Rock	---	Stone masonry	1881	48,555
Little Chute first (guard) lock ¹	26.5	Little Chute	---	35.4	---	---	6.6	---	Rock	---	Stone masonry	1904	7,817 ⁵
Little Chute dam ²	26.6	Little Chute	---	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1932	82,554
Cedars lock ²	27.3	Little Chute	1	35.0	144.0	9.8	6.8	7.3	Rock	---	Stone masonry	1888	34,972
Cedars dam ³	27.4	Little Chute	1	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1933	84,973
Appleton fourth lock ²	30.7	Appleton	1	35.0	144.0	7.6	8.1	7.9	Rock	---	Stone masonry	1907	40,893
Appleton lower dam ²	30.9	Appleton	1	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1934	73,903
Appleton third lock ²	31.3	Appleton	---	35.0	144.0	8.7	6.0	8.6	Rock	---	Stone masonry	1900	32,238
Appleton second lock ²	31.6	Appleton	---	35.1	144.6	9.6	6.9	6.0	Clay	---	Stone masonry	1901	22,940
Appleton first lock ²	31.9	Appleton	---	35.0	144.7	10.0	6.6	6.0	Rock	---	Stone masonry	1884	36,004
Appleton upper dam	32.2	Appleton	---	---	---	---	---	---	Rock	Fixed ³	Concrete	1940	151,558
Menasha lock ²	37.0	Menasha	---	35.4	144.0	8.5	7.2	8.0	Clay	---	Composite	1899	19,326 ⁵
Menasha dam ₂	37.8	Menasha	---	---	---	---	---	---	Hardpan	Fixed ³	Concrete	1937	84,686

¹Depth shown is on breast wall, which is controlling depth for upper pool.

²Original structure built prior to assumption of control by United States on Sep. 18, 1872.

³Provided with sluices.

⁴Flash boards used.

⁵Partially rebuilt.

DETROIT, MI, DISTRICT**TABLE 21-J RECONNAISSANCE & CONDITION SURVEYS**

Name of Project	Date Survey Conducted
BAYFIELD HARBOR, WI	OCTOBER 2000
BIG BAY HARBOR, MI	JULY 2001
CASEVILLE HARBOR, MI	JUNE 2001
CHEBOYGAN HARBOR, MI	SEPTEMBER 2001
DETOUR HARBOR, MI	JULY 2001
EAGLE HARBOR, MI	JULY 2001
GRAND MARAIS HARBOR, MI	SEPTEMBER 2001
GRAND TRAVERSE BAY, MI	JULY 2001
GREILICKVILLE HARBOR, MI	OCTOBER 2000
HAMMOND BAY HARBOR, MI	MAY 2001
KNIFE RIVER HARBOR, MN	MAY 2001
LA POINTE HARBOR, WI	OCTOBER 2000
MACKINAW CITY HARBOR, MI	AUGUST 2001
PENSAUKEE HARBOR, WI	OCTOBER 2000
PRESQUE ISLE HARBOR, MI	AUGUST 2001
TAWAS BAY HARBOR, MI	AUGUST 2001
TWO HARBORS HARBOR, MN	OCTOBER 2000
WASHINGTON ISLAND, WI	AUGUST 2001
WHITEFISH POINT HARBOR, MI	JULY 2001

CHICAGO, ILLINOIS, DISTRICT

The district comprises Cook, McHenry, Lake, Kane, DuPage, and Will Counties in Illinois, and Lake and Porter Counties in Indiana, and a portion of La Porte County along Lake Michigan in Indiana.

IMPROVEMENTS

Navigation	Page		
1. Burns Waterway Harbor, IN	22-3	31. Flood Control Work Under Special	
2. Burns Waterway SBH, IN	22-3	Authorization	22-16
3. Burns Waterway Harbor (Major Rehab), IN	22-4	General Investigations	Page
4. Calumet Harbor and River, IL and IN	22-4	32. Surveys	22-17
5. Chicago Harbor, IL	22-4	33. Collection and Study of Basic Data	22-17
6. Chicago River, IL	22-5		
7. Indiana Harbor, IN	22-6		
8. Indiana Harbor CDF, IN	22-6		
9. Lake Michigan Diversion	22-7		
10. Michigan City Harbor, IN	22-8		
11. Waukegan Harbor, IL	22-8		
12. Reconnaissance and Condition Surveys	22-9		
13. National Emergency Preparedness	22-9		
Alterations of Bridges			
14. Other Authorized Bridge Alterations	22-9		
Beach Erosion Control			
15. Casino Beach, IL	22-9		
16. Chicago Shoreline, IL	22-9		
17. Illinois Beach State Park, IL	22-10		
18. Indiana Dunes National Lakeshore Bank Protection, Beverly Shores, IN	22-11		
19. Indiana Shoreline Erosion, IN	22-11		
20. Other Authorized Beach Erosion Control Projects	22-11		
21. Beach Erosion Control Under Special Authorization	22-11		
Flood Control			
22. Chicago River, IL (North Branch)	22-11		
23. Des Plaines River	22-12		
24. Lake George, Hobart, IN	22-12		
25. Little Calumet River, IN	22-13	26.	
Little Calumet River Basin, Cady Marsh Ditch, IN	22-13		
27. McCook and Thornton Reservoirs, IL	22-14		
28. North Branch, Chicago River, IL	22-14		
29. O'Hare Reservoir, IL	22-15	30.	
Other Authorized Flood Control Projects	22-16		

TABLES

Title	Table Number	Pages
Cost and Financial Statement	22-A	22-18 thru-22
Authorization Legislation	22-B	22-23 thru 27
Existing Projects	22-C	22-28 thru 29
Other Authorized Bridge Alterations	22-D	22-30
Other Authorized Beach Erosion Projects	22-E	22-30
Other Authorized Flood Control Projects	22-F	22-30
Deauthorized Projects	22-G	22-31

Navigation

1. BURNS WATERWAY HARBOR, IN

Location. Northwestern Indiana on the southern shore of Lake Michigan in Porter County, 28 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

Previous Projects. None.

Existing Project. Provides for (a) a rubblemound north breakwater 4,630 feet long and a rubblemound breakwater west arm 1,200 feet long, for a total breakwater length of 5,830 feet; (b) an approach channel 30 feet deep and 400 feet wide; (c) an outer harbor 28 feet deep; (d) an east harbor arm 27 feet deep and 620 feet wide; and (e) a west harbor arm 27 feet deep and 620 feet wide. The project was authorized by the River and Harbor Act of October 27, 1965 (Public Law 89-298; House Document Number 160, 88th Congress, 1st Session). The authorizing act also provided the Secretary of the Army with the authority to reimburse the State of Indiana for expenditure of funds used to construct such portions of the project as approved by the Chief of Engineers and constructed under the supervision of the Chief of Engineers (See tables 22-B,C).

Local Cooperation. Fully complied with.

Terminal Facilities. Eleven berths are available at the facilities owned and administered by the Indiana Port Commission. One berth, committed to grain, is located on the outer harbor. Four berths on the East Harbor Arm are dedicated to handling dry and liquid bulk commodities. The East Harbor Arm also includes a small-boat harbor designed to accommodate working tugs for vessel assistance and barge movement. On the West Arm there are six berths. Although one berth is available for dry bulk cargoes, these berths are primarily used for the shipment and receipt of general cargo. Additionally, the Indiana Port Commission, through a lease, administers the west side of the West Harbor Arm for barge fleetings. The remaining available harbor berthing on the east side of the East Harbor Arm is privately owned.

Operations and Results During Period.

Maintenance: Sediment surveys and studies were performed at a cost of \$205,001 by other Corps of Engineers and \$29,754 by hired labor. Breakwater maintenance costs were \$96,114 for hired labor and other in-house costs, \$204,374 for stone supply

contracts, \$367,225 by other Corps of Engineers, and \$2,445,145 by construction contract. Supervision and administration cost was \$18,299. Engineering and design costs were \$27,328 for hired labor and other in-house. Preliminary Assessment for channel maintenance costs were \$27,405 by other Corps of Engineers \$82,309 by AE contract and \$107,337 for hired labor. Project operation and real estate costs were \$88,361 and \$2,954, respectively.

Condition at End of Fiscal Year. The existing project is complete. Total costs to September 30, 2001 were \$30,888,743 of which \$13,599,900 was for new work (\$13,584,000 federal and \$15,900 non-federal) and \$17,288,843 (\$17,180,481 federal and \$108,362 non-federal) for was maintenance.

2. BURNS WATERWAY SBH, IN

Location. Northwestern Indiana on the southeast shore of Lake Michigan in Porter County, at the mouth of the Burns Waterway, approximately 27 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

Previous Projects. None

Existing Project. Provides for (a) a rubblemound west breakwater 1,043 feet long; (b) a rubblemound north breakwater 678 feet long; and (c) channel improvements of 5,200 linear feet with 145,000 cubic yards of dredged material used for beach nourishment (See table 22-C).

Local Cooperation. Fully complied with.

Terminal Facilities. There are several marinas located along Burns Waterway and Burns Ditch. The principal marina, which is owned and operated jointly by the City of Portage and the Little Calumet River Basin Commission, was built in 1996 to comply with the local cooperation agreement. The commodities handled at this harbor are fresh fish caught as a result of charter boat fishing.

Operations and Results During Period.

Maintenance: Contract close-out costs were \$2,052.

Condition at End of Fiscal Year. Total costs of the existing project to September 30, 2001 were \$7,000,493 of which \$3,770,558 was for new work (\$2,000,000 federal and \$1,770,558 non-federal), and \$3,229,935 for maintenance (federal).

3. BURNS WATERWAY HARBOR (MAJOR REHAB), IN

Location. The project is located in northwestern Indiana on the southern shore of Lake Michigan in Porter County.

Existing Project. The rehabilitation project consists of constructing a segmented reef breakwater system, 75 feet lakeward of the northern section of the existing rubblemound breakwater. The project provides for seven reef segments, one 1,575 feet long and six 375 feet long with 25 feet spacing between segments

Local Cooperation. None required.

Operations and Results During the Period. New Work: Following construction completion in 1998, project closeout was completed in 1999.

Condition at the End of Fiscal Year. The construction contract was financially completed. The total cost of the existing project to September 30, 2001 was \$13,384,161.

4. CALUMET HARBOR AND RIVER, IL and IN

Location. Northeastern Illinois, on the southwest shore of Lake Michigan in Cook County, 15 miles south of Chicago Harbor, within the corporate limits of the City of Chicago, except for breakwaters, and approach channel and an anchorage area which are in Indiana. (See NOAA Nautical Chart Numbers 14926 and 14929.)

Previous Projects. For details see page 1400 of Annual Report for 1962.

Existing Project. Provides for (a) a stone-filled timber crib breakwater 6,714 feet long; (b) a stone-filled double-row steel sheet pile detached breakwater 5,007 feet long; (c) an approach channel 29 feet deep and 3,200 feet wide; (d) an outer harbor anchorage area 28 feet deep and 3,000 feet wide; (e) an entrance channel 27 feet deep and 230 to 290 feet wide; (f) a channel in the Calumet River 27 feet deep and at least 200 feet wide to the north side of 130th Street; (g) three turning basins designated as numbers, 1, 3, and 5; and (h) a channel extending into Lake Calumet at a width of about 1,000 feet. The project was authorized by the River and Harbor Acts of March 3, 1899, June 13, 1902, August 30, 1935, July 14, 1960, October 23, 1962, and October 27, 1965 (See tables 22-B,C).

Local Cooperation. Fully complied with.

Terminal Facilities. Thirty six docks, wharves, and terminals are available. The Illinois International Port District owns four wharves, two grain elevators, one dock, and one terminal. The United States Government owns one stone dock. The most important cargoes handled are general cargo, grain, iron ore and concentrates, coal, and cement.

Operations and Results During Period.

Maintenance: Sediment surveys and studies were performed by hired labor at a cost of \$16,787 and by other Corps of Engineers for \$4,816. CDF maintenance costs were \$15,200 for E&D, \$864,900 by contract, \$36,375 for S&A and \$2,967 for hired labor. Costs for routine operation and monitoring of the CDF were \$60,393 for hired labor and \$5,550 by other federal agency. Costs for breakwater maintenance were \$4,405 for hired labor, \$239,346 by other Corps of Engineers and \$146,234 for supply and service contracts. Dredging costs for the river were \$75,368 for E&D, \$861,811 by contract, \$46,864 for hired labor and other in-house resources and \$57,123 for S&A. Harbor dredging costs were \$95,936 for E&D, \$400,000 by contract, \$8,394 by other Corps, \$18,344 for hired labor and \$5,196 for S&A. Facilities maintenance costs were \$356,817. Project management and real estate costs were \$60,820 and \$4,993, respectively.

Condition at End of Fiscal Year. The existing project is 100 percent complete. Total costs of the existing project to September 30, 2001, were \$70,457,004 of which \$22,578,567 was for new work (\$19,541,964 federal funds and \$3,036,603 public works funds), \$42,450,436 for maintenance (\$41,613,769 federal and \$836,667 non-federal funds) and \$5,428,001 federal funds for rehabilitation.

5. CHICAGO HARBOR, IL

Location. Northeastern Illinois on the southwest shore of Lake Michigan in Cook County, within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927, and 14928.)

Previous Projects. See page 1396 of Annual Report for 1962.

Existing Project. Provides for (a) a stone-filled timber crib shore and extension breakwater 2,250 feet long; (b) a stone-filled timber crib exterior breakwater 5,421 feet long; (c) a rubblemound and stone-filled

concrete caisson southerly extension to the exterior breakwater 4,944 feet long, exclusive of a 582-foot entrance gap enclosing an outer basin of about 970 acres; (d) a stone-filled timber crib north pier 960 feet long; (e) a stone-filled timber crib north inner breakwater 4,034 feet long with a 304-foot shore return and a 754-foot gap; (f) a stone-filled timber crib south inner breakwater 2,544 feet long, enclosing an inner basin of approximately 224 acres; (g) a lake approach channel 29 feet deep and 800 feet wide; (h) a channel and maneuver area inside the exterior breakwater and southerly extension breakwater 28 feet deep with a maximum width of 1,300 feet; (i) an entrance channel 21 feet deep and (j) the Chicago Harbor Lock. The Chicago Lock was constructed in 1938 by the Metropolitan Water Reclamation District of Greater Chicago. The deep-draft lock is 600 feet long, 80 feet wide, and 23 feet deep over the sill and is of steel cellular design.

The project was authorized by the River and Harbor Acts of July 11, 1870, June 14, 1880, March 3, 1899, July 25, 1912, March 2, 1919 and October 23, 1962 (See table 22-B). Operation and maintenance responsibilities in the interest of navigation were transferred to the Federal Government pursuant to Public Law 98-63 approved July 30, 1983; Section 107 of the Public 97-88; and the Memorandum of Agreement between the Department of Army and the Metropolitan Water Reclamation District of Greater Chicago.

Local Cooperation. Fully complied with.

Terminal Facilities. There are five docks with 18 berths for passenger excursion boats and 10 berths for visiting large vessels. The most important cargoes handled through the lock are petroleum products, in addition to sugar and non-metallic minerals.

Operations and Results During Period.

Maintenance: Project condition surveys were performed by other Corps for \$38,361 and \$5,871 by hired labor. The lock was operated by contract at a cost of \$858,908. Other costs associated with the lock operation were \$120,520 for hired labor and other in-house services and \$6,815 for real estate. Data evaluation of the wave gage was conducted by other Corps at a cost of \$134,813. Lock maintenance costs were \$80,453 by hired labor and other in-house resources, \$30,867 by contract and \$69,800 by other Corps of Engineers. Work on lock property improvements (East wall) was conducted at costs of \$54,700 by AE contract, \$13,333 for in-house E&D, \$14,120 for S&A and \$3,680 for hired labor.

Breakwater maintenance costs were \$11,068 for hired labor, \$394,412 by other Corps and \$237,874 for stone supply contract. Work on the lock major rehabilitation, gate design, was performed at \$460,457 by hired labor E&D and \$23,353 by other Corps of Engineers. Work was initiated on a breakwater major rehabilitation report with costs of \$336,721 and \$67,475 by other Corps for a breakwater model and hydrographic survey, respectively. A prospectus for potential visitors' center was started at costs of \$18,700 by hired labor, \$4,613 by other Corps and \$108,216 by contract. Project management and real estate costs were \$206,648 and \$5,217, respectively.

Condition at End of Fiscal Year. The existing project is complete. Total costs to September 30, 2001 were \$56,633,015 of which \$4,788,827 was for new work, \$50,357,588 was for maintenance, \$1,326,600 for rehabilitation and \$160,000 Harbor and Dams funds.

6. CHICAGO RIVER, IL

Location. Northeastern Illinois, in Cook County within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927 and 14928.)

Previous Projects. See page 1394 of Annual Report for 1962.

Existing Project. Provides for (a) a channel 21 feet deep in the main river from its mouth at Rush Street to the junction of the North and South Branches (0.7 miles); (b) a channel 21 feet deep in the North Branch from the junction to North Avenue (2.22 miles); (c) a channel 21 feet deep on the North Branch Canal (1.04 miles); (d) a 21-foot deep North Branch Turning Basin just south of North Avenue; and (e) a channel 9 feet deep in the North Branch from North Avenue to Addison Street (authorized but not constructed). The project was authorized by the River and Harbor Acts of March 3, 1899, June 13, 1902, March 2, 1907, and July 24, 1946 (See tables 22-B, C). The portion of the project authorized by the River and Harbor Act of 1946 is presently being restudied to confirm economic feasibility.

Local Cooperation. Fully complied with for completed modifications. The River and Harbor Act of July 24, 1946, which provided for the improvement of the channel, is subject to the condition that local interests furnish assurances that they will hold the United States government free from damages which

may result from construction and maintenance of the improvement. Requirement has not been complied with.

Terminal Facilities. Six docks are available. The most important cargoes handled are sand, gravel and crushed rock, non-metallic minerals and scrap iron.

Operations and Results During Period.

Maintenance: Water control activities were performed by hired labor at a cost of \$152,166, by other Corps of Engineers at a cost \$13,593 and by other federal agency at a cost of \$148,250. Program management costs were \$15,280.

Condition at End of Fiscal Year. The project is complete except for dredging the channel between North Avenue and Addison Street as authorized by the 1946 River Harbor Act. Channel maintenance for the reach from Clark Street to head of navigation has been deferred pending location and approval of suitable dredged material disposal site. Head of navigation for deep-draft vessels is North Avenue, 5.97 miles from the Michigan Avenue bridge. Total costs of the existing project to September 30, 2001 were \$18,252,596 of which \$1,500,565 was for new work and \$16,752,131 was for maintenance.

7. INDIANA HARBOR, IN

Location. Northwestern Indiana, on the southwest shore of Lake Michigan in Lake County, 19 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14926 and 14929.)

Previous Projects. For details see page 1943 of Annual Report for 1915, and page 1520 of Annual Report for 1938.

Existing Project. Provides for (a) a northerly rubblemound breakwater 1,120 feet long; (b) an easterly concrete capped caisson breakwater 201 feet long with a rubblemound extension 2,324 feet long; (c) a lake approach channel 29 feet deep and 800 feet wide; (d) an anchorage and maneuver basin 28 feet deep; (e) a main canal entrance channel 27 feet deep and 280 feet wide; (f) a main canal 22 feet deep; (g) a turning basin 22 feet deep; (h) the Forks Turning Basin 22 feet deep; (i) the Lake George Branch 22 feet deep; and (j) the Calumet River Branch 22 feet deep. The project was authorized by the River and Harbor Acts of March 4, 1913, March 2, 1919, March 20, 1922, July 3, 1930, August 30, 1935, August 28, 1937, and July 14, 1960 (See tables

22-B, C).

Local Cooperation. Substantially complied with. See FY 1986 Annual Report for full requirements.

Terminal Facilities. Fifteen docks and wharves are available. Six docks handle iron ore and limestone. Six docks are for handling petroleum products and three docks for handling gypsum, scrap metal and steel, and bulk products. However, not all docks are presently being used for the shipment or receipt of waterborne commodities.

Operations and Results During Period.

Maintenance: Continuing analysis of the demonstration of dredging disposal, waste water treatment and sediment management was conducted at costs of \$40,760 by other Corps of Engineers and \$18,028 for hired labor and other in-house costs. Other Corps performed breakwater maintenance for \$175,000 and a stone supply contract of \$108,750. Project operation costs were \$65,697.

Condition at End of Fiscal year. The existing project is complete. Total costs of the existing project to September 30, 2001 were \$19,779,332 of which \$4,909,648 (\$4,897,148 federal and \$12,500 non-federal contributed funds) was for new work and \$14,869,594 (federal) for maintenance. Channel maintenance has been deferred pending construction of suitable Confined Disposal Facility.

8. INDIANA AND CANAL CONFINED DISPOSAL FACILITY (CDF), IN

Location: The navigation project is located on the southwestern shore of Lake Michigan within the City of East Chicago, Lake County, Indiana, 4-1/2 miles east of the Indiana-Illinois state line and 17 miles from downtown Chicago, Illinois. A CDF will be constructed at the Energy Cooperative Incorporate (ECI) site in East Chicago, Illinois.

Existing Project. IHC is an authorized Federal navigation project with an entrance channel and outer harbor protected by breakwaters, and an inner harbor which includes the Indiana Harbor Canal and its two branches, the Lake George Branch, which extends west for a distance of 6,800 feet, and the Calumet River Branch which extends to the south for about 2 miles where it joins the Grand Calumet River. The harbor has not been dredged since 1972, when the United States Environmental Protection Agency determined that disposal in Lake Michigan was no

longer acceptable due to the polluted character of the harbor sediments.

A 4.8 million cubic yards capacity CDF will be constructed on the 164 acres of land adjacent to the Lake George Branch of the IHC, formerly occupied by an oil refinery owned by the Atlantic Richfield Company and subsequently acquired by ECI. The ECI property currently has open Resource Conservation and Recovery Act (RCRA) status due to the contaminated soil and groundwater that exists on the site. Use of this site for the CDF is contingent upon the construction of specific RCRA closure and corrective action features which will be integral aspects of the CDF construction. The elements of the CDF include construction of an impervious cutoff wall built around the 11,000 linear feet perimeter of the site to approximately 30-35 feet depths, tied into the clay layer below; groundwater monitoring and extraction wells and pumps to maintain an inward gradient and prevent any contaminated groundwater from leaving the site; an air monitoring system; an on-site water treatment facility to treat groundwater pumpage, water from dried dredged materials and precipitation falling on the site; dikes built in two 15 foot stages, with an impervious clay layer on the interior of the dikes; a rehandling area; and a cap constructed using 3 feet of clay, 6 inches of sand, 2 feet of clean fill and 6 inches top soil with grass cover. This cap configuration, used for both the CDF and the buffer areas, will satisfy the RCRA closure requirement for the ECI site.

Local Cooperation. The local sponsor is the East Chicago Waterway Management District (ECWMD). The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, the ECWMD is required to pay a cash contribution to bring the total non-federal share to twenty-five percent of the costs allocated to general navigation facilities during construction and pay 50 percent of the costs of incremental maintenance. The local sponsor is also required to reimburse an additional 10 percent of the costs of the general navigation facilities allocated to commercial navigation within a period of 30 years following completion of construction, as partially reduced by a credit allowed for the value of lands, easements, rights of way, relocations, and dredged or excavated material disposal provided for commercial navigation. In addition, the ECWMD is required to pay 100 percent

of the costs allocated to general navigation facilities during construction for the local service facilities (non-federal berthing areas) and 100 percent of costs of incremental maintenance for the local service facilities. The Project Cooperation Agreement for the project was executed 7 August 2000.

Operations and Results During the Period. New Work: Real estate management cost was \$36,541. Total engineering and design costs were \$1,353, 749 (\$1,259,427 federal and \$ 94,322 nonfederal). Construction management cost was \$1,312. Total cost of the project in FY01 was \$1,391,602 (\$1,297,280 was federal and \$ 94,322 non federal.)

Condition at the End of Fiscal Year. Work on the plan and specifications for the contract cut-off wall was continued. Total cost of the existing project to September 30, 2001 was \$3,415,068 (\$3,320,746 federal and \$94,322 non federal.)

9. LAKE MICHIGAN DIVERSION

Location. Northeastern Illinois on the southwest shore of Lake Michigan in Cook County, within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927, and 14928.)

Previous Projects. See page 22-3 of Annual Report for 1988.

Operations and Results During Period. Operations: Water accounting studies and preparation of reports were performed at costs of \$262,188 by hired labor, \$356,630 by other federal agency, and \$185,349 by AE contract .

Condition at End of Fiscal Year. Total cost of the existing project to September 30, 2001 was \$6,466,067.

10. MICHIGAN CITY HARBOR, IN

Location. Northwestern Indiana, on the southeast shore of Lake Michigan in La Porte County, 38 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

Previous Projects. See page 1407 of Annual Report for 1992.

Existing Project. Provides for (a) a stone-filled timber crib detached breakwater 1,304 feet long; (b) a pile and steel sheeting west pier 835 feet long; (c) a stone-filled timber crib, pile and steel sheeting east pier 2,276 feet long; (d) a stone-filled timber crib east breakwater 1,000 feet long; (e) an entrance channel 18 feet deep and 425 feet wide; (f) a turning basin No. 1, 18 feet deep; (g) a channel in Trail Creek 18 feet deep; (h) an outer basin 12 feet deep in the northerly portion and 8 feet deep in the southerly portion; and (i) a channel in Trail Creek 6 feet deep and 50 feet wide from turning basin No. 2 to the E Street bridge. The project was authorized by the River and Harbor Acts of March 3, 1899, March 3, 1905, January 21, 1927, August 30, 1935, and Section 107 of July 14, 1960, River and Harbor Acts, September 30, 1966 (See tables 22-B, C).

Local Cooperation. Fully complied with.

Terminal Facilities. There are several marinas in the lower mile of Trail Creek. The commodity handled at this harbor is fresh fish.

Operations and Results During Period.

Maintenance: Sediment surveys and studies were conducted by other federal agency for \$95,976. Confined Disposal Facility maintenance costs were \$16,848. Contract close-out costs for FY00 dredging event were \$9,419. Breakwater maintenance costs were \$98,460 for in-house E&D. Costs to complete contaminant determination report, sampling plan and sampling and analysis for potential deepening to authorized depth were \$32,027 by hired labor. Disposal site coordination, DMMP and PCA negotiation for FY02 dredging of Trail Creek was conducted at cost of \$82,475 for hired labor. Project operation and real estate costs were \$45,984 and \$5,996, respectively.

Condition at End of Fiscal Year. Total costs of existing project to September 30, 2001 were \$17,234,385, of which \$1,574,158 was for new work (\$1,543,646 federal and \$30,512 non-federal funds), \$14,041,557 for maintenance (\$13,986,557 federal and \$55,000 non-federal) and \$1,618,670 for rehabilitation (federal funds).

11. WAUKEGAN HARBOR, IL

Location. Northeastern Illinois on the west shore of Lake Michigan in Lake County, 38 miles north of Chicago Harbor. (See NOAA Nautical Chart Numbers 14904 and 14905.)

Previous Projects. See page 1392 of Annual Report for 1962.

Existing Project. Provides for (a) a northerly stone-filled timber crib breakwater 588 feet long; (b) a stone-filled reinforced concrete caisson shore connection 270 feet long; (c) a stone-filled double-row steel sheeting shore connection 640 feet long; (d) a single-row steel sheeting shore connection 398 feet long; (e) a stone-filled timber crib north pier 998 feet long; (f) a single-row steel sheet piling north pier 444 feet long; (g) a steel piling revetment 632 feet long; (h) a stone-filled timber crib pier 1,399 feet long; (i) a stone-filled double-row pile and sheeting south pier 1,712 feet long; (j) an entrance channel 22 feet deep and 390 feet wide; (k) a channel between the piers 18 feet deep and 200 feet wide; (l) an inner basin 18 feet deep; and (m) an anchorage area in the southwest corner of the inner basin 8 feet deep. An authorized, but as yet unconstructed project modification provides for (a) an entrance channel 27 feet deep, (b) a channel between the piers 23 feet deep and (c) an inner basin and channel extension 23 feet deep. The project was authorized by the River and Harbor Acts of June 3, 1902, July 13, 1930, and March 2, 1945, and on December 17, 1970 by delegated authority under Section 201 of the Rivers and Harbor Act of October 27, 1965. (See tables 22-B, C). The portion of the project authorized by the 1970 modification is being restudied to confirm economic feasibility.

Local Cooperation. Fully complied with for completed portions. The Dec. 17, 1970 modification, which provides for modifications to the channel, is subject to the conditions that local interests furnish assurances that they will hold the United States government free from damages from construction and maintenance of the improvement and that certain lands, easements and rights-of-way be provided.

Terminal Facilities. Four docks are available. The commodities handled at this harbor are gypsum and building cement.

Operations and Results During Period.

Maintenance: Outer harbor dredging was conducted at costs of \$20,205 by other Corps, \$88,647 for in-house E&D, \$11,697 for hired labor, \$316,500 by contract and \$7,143 for S&A. Breakwater maintenance (resurfacing) was completed at costs of \$34,939 for E&D, \$32,128 for hired labor, \$210,000 by other Corps and \$33,883 for supply and service contracts. Continuing work on the inner harbor CDMP was

performed by other Corps for \$28,050 and \$80,437 by hired labor. Engineering and design for south pier repairs was conducted at costs of \$8,344 by AE contract and \$44,040 by in-house E&D. Project operation and real estate costs were \$132,202 and \$3,402, respectively.

Condition at End of Fiscal Year. The existing project is complete except for the 1970 modification, which is being restudied. Maintenance of the channel between the pier to the head of navigation has been deferred pending location, approval and probable construction of a suitable dredged material disposal site. Total costs of existing project to September 30, 2001 were \$18,741,535 of which \$823,026 was for new work and \$17,918,509 was for maintenance.

12. RECONNAISSANCE AND CONDITION SURVEYS

Condition surveys were performed at a cost of \$83,392.

13. NATIONAL EMERGENCY PREPAREDNESS

Fiscal Year 2001 costs for management and mobilization planning were \$33,373.

Alteration of Bridges

14. OTHER AUTHORIZED BRIDGE ALTERATIONS

See table 22-D.

Beach Erosion Control

15. CASINO BEACH, IL

Location. Casino Beach is located along the Lake Michigan shoreline at Jackson Park in Chicago, Illinois.

Existing Project. The Casino Beach project was authorized by Section 501 (a) of the 1986 Water Resources Development Act. The project consists of rehabilitating 1,800 feet of the Casino jetty by encasing the existing timber pile and stone structure in steel sheet piling and a concrete cap.

Local Cooperation. The local project sponsor is the Chicago Park District. The local sponsor is required to provide all lands, easements and rights-of-way;

complete all necessary relocations; hold and save the United States free from damages due to construction or operation of the project; operate and maintain the completed project; and make cash contribution toward the cost of construction.

Operations and Results During Period. No new work.

Condition at End of Fiscal Year. Construction is complete. The total cost of the existing project to September 30, 2001 was \$2,465,517 federal and \$2,499,451 non-federal.

16. CHICAGO SHORELINE, IL

Location. The project area includes 9.2 miles of revetment reconstruction within 24 miles of publicly owned shoreline along Lake Michigan in Chicago, Illinois.

Existing Project. The Chicago Shoreline project is not authorized. The Federally supportable plan consists of constructing rubblemound revetments along 16,750 and 25,400 feet of the shoreline in the Lincoln Park and Burnham Park areas, respectively. Other project features include: revetments near the Adler Planetarium and at Meigs Field; a breakwater to protect the South Filtration Plant near 78th Street; and nourishment of a short reach of shoreline near Fullerton Avenue and 31st Street. The estimated fully funded project cost for this plan (1999) is \$293,240,000. The local sponsor prefers to substitute steel sheet pile step stone revetments (the locally preferred plan, or LPP) for the rubblemound revetments in the Lincoln and Burnham Park areas. They have agreed to pay the increased cost above the federally supportable plan. The LPP is the authorized plan.

Local Cooperation. This project has three separate Project Cooperation Agreements (PCA's). The first PCA, for the Reach 5 breakwater reconstruction, was executed on 28 April 1997. The second PCA, for Section 215 work, was executed on 7 August 1998, and covers construction of three portions of the project: 1,000 feet of revetment at Belmont Harbor in Reach 2, an 800 foot stretch of shoreline at 31st Street beach in Reach 4 (both of these are being constructed by the non-federal sponsor), and revetment reconstruction from 31st to 33rd streets in Reach 4 (Corps work). The project Cooperation Agreement for the balance of the project work was executed on 17 May 1999, implementing

section 206 of WRDA 92 which allows the non-federal sponsor to perform a significant portion of the work. Design and construction of the project is well underway. Project construction is estimated to be completed in the year 2005.

The local sponsor is required to provide all lands, easements, and rights-of-way; complete all necessary relocations; hold and save the United States free from damages due to construction or operation of the project; operate and maintain the completed project; perform work for credit towards their cash contribution; and make cash contribution toward the cost of any outstanding balance.

Operations and Results During Period. The Corps performed betterment work for the non-Federal sponsors at 31st to 33rd Street, Belmont Harbor Peninsula and I-55 to 30th Street. The Corps continued with revetment construction in Reach 2, at Irving to Belmont and Montrose North, and in Reach 4, at I-55 to 30th, 33rd to 37th Street, and 41st to 43rd street. The non-Federal sponsors completed construction in Reach 4, at 51st to 54th Street. A total of \$16,463,280 was expended for construction and \$1,099,601 was expended for construction management. Engineering and design costs of \$2,658,092 were expended on Reaches 2 and 4, which included \$869,229 for A-E contracts. Total expenditures were \$21,970,973 (\$20,220,973 federal and \$1,750,000 non-federal in-kind services) in FY2001.

Condition at End of Fiscal Year. Completed project construction consists of the Reach 5 Breakwater (sponsor); Reach 3, Solidarity Drive Revetment (sponsor); Reach 2, Belmont Harbor Peninsula Revetment (sponsor); Reach 4, 31st Street Beach Stabilization (sponsor); and Reach 4, 31st to 33rd Street (Corps). Continuing construction was at Reach 2, Irving to Belmont (Corps); Reach 4, I-55 to 30th Street (Corps); Reach 4, 33rd to 37th Street (Corps); and Reach 4, 51st to 54th Street (sponsor). Engineering and design was continued in Reaches 2 and 4 by the Corps and the non-Federal sponsor. The total cost of the existing project to September 30, 2001, was \$83,617,612, \$68,429,265 federal funds and \$15,188,347 in non-federal in-kind services.

17. ILLINOIS BEACH STATE PARK, IL

Location. Northeastern Illinois on the west shore of Lake Michigan along the 9-mile reach of shoreline immediately south of the Illinois-Wisconsin State line.

(See NOAA Nautical Chart Numbers 14901 and 14904.)

Previous Projects. None.

Existing Project. Provides for annual beach nourishment and construction of a sediment trap at the south end of the State Park. The project would entail placement of coarse-graded sediment at six stockpile sites at the rate of 124,000 cubic yards in the first year, 104,000 cubic yards in the second year, and 60,000 cubic yards in the third year. Thereafter, 60,000 cubic yards would be placed at the northernmost stockpile annually. The sediment trap would consist of a rubble-mound groin, with a total length of 600 feet from the base of the dunes (400 feet lakeward from the shoreline), with a crest height of about +8 feet above Low Water Datum (LWD). The project was conditionally authorized in Section 501 (b) of the 1986 Water Resources Development Act subject to a report by the Corps of Engineers and approval by the Secretary of the Army. A Feasibility Review Conference was held in April 1991. As a result, the District Engineer was directed to terminate work on this project and to submit a letter report to the Congress summarizing the feasibility study and the results of the Washington level review. Work on the feasibility report was resumed in FY 1994 as directed by the Assistant Secretary of the Army for Civil Works in response to a letter from Congressman John Porter, 10th Congressional District of Illinois.

Local Cooperation. The local project sponsor would be required to provide all lands, easements and rights-of-way; accomplish all required relocations; hold and save the United State free from damages; and provide a cash contribution.

Operations and Results During Period. No work was completed on the pre-construction engineering and design (PED) phase of the project. Effort was expended to complete the revised Feasibility study.

Condition at End of Fiscal Year. Total cost of the existing PED project to September 30, 2001 was \$11,908.

18. INDIANA DUNES NATIONAL LAKESHORE BANK PROTECTION, BEVERLY SHORES, IN

Location. Northwestern Indiana, on the southeast shore of Lake Michigan in Porter County, about 35 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14095 and 14926.)

Existing Project. Provides for placement of 13,000 feet of stone revetment and periodic repair of riprap to maintain the full length of Lake Front Drive in Beverly Shores, Indiana. The current project was authorized by Public Laws 97-88 and 98-63.

Local Cooperation. Fully complied with. Project lands are held by the National Park Service.

Operations and Results During Period. No work was performed during this reporting period.

Condition at End of Fiscal Year. Total costs of existing project to September 30, 2001 were \$2,956,000 of which \$660,000 was for new work and \$2,296,000 was for maintenance.

19. INDIANA SHORELINE EROSION, IN

Location. On the south end of Lake Michigan along a two-mile reach of shore west of Michigan City Harbor, Indiana. (See NOAA Nautical Chart Numbers 14095 and 14926.)

Existing Project. The project consists of beach nourishment along approximately two miles of beach between Michigan City Harbor and Beverly Shores, Indiana, requiring an initial placement of 264,500 cubic yards of sand. Periodic replenishment of about 264,500 cubic yards of sand at five year intervals would be required throughout the life of the project. The project was authorized for construction by Section 501 of the Water Resources Development Act of 1986. Estimated federal cost (1997) for new work is \$184,000,000, including future beach nourishment.

Local Cooperation. None required.

Operations and Results During Period. Monitoring of initial sand placement and impacts to fish was performed, and preparation of plans and specifications for the next round of sand placement was initiated. There was no real estate related cost. The FY 2001 cost was \$815,267. Total construction cost was \$676,000 (federal). Design cost was \$120,488 (federal) of which \$44,614 was performed by other Corps of Engineers and \$75,874 by hired labor cost. Construction management cost was \$18,779.

Condition at End of Fiscal Year. Initial construction was completed. Monitoring of project and preparation of plans and specifications for additional sand placement was continued. The total

cost of the existing project to September 30, 2001 is \$8,671,745 (federal).

20. OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

See table 22-E.

21. BEACH EROSION CONTROL UNDER SPECIAL AUTHORIZATION

Beach erosion control activities pursuant to Section 103 of the Rivers and Harbors Act of 1962, as amended. None.

Flood Control

22. CHICAGO RIVER, IL (NORTH BRANCH)

Location. Northern Illinois, in Cook and Lake Counties.

Existing Project. Provides for clearing the channel of the North Branch of the Chicago River of fallen trees, roots, and other debris and objects which contribute to the flooding, unsightliness, and pollution of the river. The project extends from Wolf Point in Chicago, Illinois, to its source just south of Rockland Road east of Libertyville, Illinois. The project was authorized by the River and Harbor Act of December 31, 1970 (Section 116) and amended by the River and Harbor Act of March 7, 1974 and the Water Resources Development Act of 1986.

Local Cooperation. The 1970 Act provided that local interests furnish without cost to the United States all lands, easements, rights-of-way, and disposal areas necessary for construction of the project; hold and save the United States free from damages due to construction; maintain and operate all works after completion without cost to the United States; and agree to bear all costs in excess of \$200,000 for completing construction. The 1974 Act provided that the United States will maintain the channel free of trees, roots, debris and objects at a cost not to exceed \$150,000 per year with non-federal interests paying 25 percent of the cost of maintenance. The 1986 Water Resources Development Act changed the cost sharing to require that non-federal interests pay 50 percent of the cost of maintenance plus the cost of disposal. The requirements are fully complied with.

Operations and Results During Period.

Maintenance: Debris removal costs were \$94,037 by contract and \$18,482 for hired labor (federal) and \$96,105 by contract and \$25,298 for hired labor (non-federal).

Condition at End of Fiscal Year. Total cost of existing project to September 30, 2001 was \$4,741,944 of which \$231,884 was for new work (\$191,884 federal funds and \$40,000 contributed funds), and \$4,510,060 was for maintenance (\$2,765,862 federal funds and \$1,744,198 non-federal contributed funds).

23. DES PLAINES RIVER, ILLINOIS

Location. The Upper Des Plaines River is located in the northeastern Illinois counties of Lake and Cook. Its 67 miles flow through 33 communities, most of which are part of the Chicago metropolitan area.

Existing Project. The Des Plaines flood control project was authorized by Section 101(b) (10) of the 1999 Water Resources Development Act. The optimized project provides a maximum 0.12 foot reduction in stage for the 100-year flood, and the levee features meet the FEMA criteria for 100-year protection. The project consists of six features to construct (three in Lake County and three in Cook County), environmental mitigation, and a flood warning plan. The project adds 1,975 acre-feet of storage by constructing 4 features: a lateral storage area in Van Patton Woods (412 acre-feet); enlarging the existing North Fork Mill Creek Dam by elevating the crest of spillway (500 acre-feet); and excavating the existing reservoirs at Buffalo Creek (476 acre-feet) and at Big Bend Lake (587 acre-feet). The remaining 2 project features are levees with appurtenant interior drainage features. Levee 37 raises portions of Des Plaines River Road and Milwaukee Avenue between Palatine Road and Euclid Avenue from 0.5 to 5 feet over a total length of 8,500 feet. Levee 50 is a combination levee/flood wall in the City of Des Plaines between Dempster Road and the Chicago and Northwestern railroad. The length of this levee would be about 2,600 feet and the length of the floodwall would be 2,115 feet.

Local Cooperation. The nonfederal sponsor is the Illinois Department of Natural Resources (IDNR). IDNR is required to provide all lands, easements and rights-of-way; complete all required utility relocations; hold and save the United States free from damages due to construction or operation of the project; provide the required interior drainage improvements; operate and maintain the completed

project; and make a cash contribution toward the cost of construction.

Operations and Results During the Period. New Work: Pre-construction engineering and design stage. Federal engineering and design cost was \$484,714 (of which \$4,043 was A/E cost and \$480,671 was design hired labor cost). Non-Federal engineering and design cost was \$178,843 (\$29,464 was A/E cost and \$149,379 design labor cost).

Condition at End of Fiscal Year. Pre-construction engineering design is in progress. Total cost of existing project to September 30, 2001 was \$1,129,402 (\$866,150 federal and \$263,252 non-federal).

24. LAKE GEORGE, HOBART, IN

Location. Lake George in Hobart, Indiana and Deep River watershed upstream of the lake through Lake Station, Indiana.

Existing Project. The project consists of the removal of silt, aquatic growth and other material and the construction of silt traps or other devices to prevent and abate the deposition of sediment. Project was authorized by Section 602 of the Water Resources Development Act (WRDA) of 1986.

Local Cooperation. Section 602(b), Water Resources Development Act of 1986 applies. By letter dated March 9, 1987 the City of Hobart, Indiana indicated that it was a potential local project sponsor and applied for credit for previous work applicable to the project under the provisions of Section 104 (d) of the 1986 WRDA. By letter dated March 19, 1999, the City of Hobart, Indiana withdrew its interest in the project.

Operations and Results During Period. No work was performed in FY 2001. Project was terminated in FY 1999.

Condition at End of Fiscal Year. Pre-construction engineering and design was terminated. Total cost of the existing project to September 30, 2001 is \$1,311,977.

25. LITTLE CALUMET RIVER, IN

Location. The Little Calumet River project is located in northwest Indiana between the Illinois - Indiana State line and the Conrail Railroad in east Gary, Indiana.

Existing Project. The project consists of replacing 9.5 miles of existing spoil bank levees with 12.2 miles of new levees, floodwalls, closure and appurtenant structures between the Illinois-Indiana State line and Cline Avenue; construction of 9.7 miles of set-back levees in Gary; a diversion structure at Hart Ditch; permanent evacuation of 29 structures in the Black Oak area of Gary; flood proofing 38 residential structures in Gary; modifying 7 miles of channel and 3 accompanying bridge culvert modifications; modifying one highway bridge; construction of 16.8 miles of hiking trails and accompanying recreation support facilities; and preservation of 788 acres of wetlands with wildlife mitigation measures. Estimated cost for this project is \$ 194,000,000(\$ 143,000,000 federal and \$51,000,000 is non-federal to be contributed by local interests). The project was authorized by Section 401 of the Water Resources Development Act of 1986. The construction contract for Stages II-3A, III and V-1 levee segment and the Stage I-4 demolition contract were completed .Completed construction on East Remediation, and Stage IV-2B.

Local Cooperation. The local sponsor is the Little Calumet River Basin Development Commission. The local cooperation agreement was signed on August 16, 1990. The local sponsor is required to provide all lands, easements and rights-of-ways; provide all required relocations; and hold and save the United States from any damages due to construction or operation of the project. In addition, the local sponsor is required to pay a five percent cash contribution for structural flood control measures, fifty percent for recreation features and twenty-five percent for fish and wildlife enhancements. A memorandum of agreement with the local sponsor to design non-federal improvements was signed on May 20, 1992.

Operations and Results During Period.

Completed work on Stage IV-1 North, construction on Burr Street Betterment Phase I, and completed Pump Station 1B. Continue Stage IV-1 South Pump station Stage1A and 5th Pump Station. and Pump Station 1B.

Total cost for Real Estate was \$227,534 ,all Federal real estate management cost. No land costs. Total construction placement cost was \$6,649,608 of which \$5,565,531 was federal and \$1,084,077 was non-federal including betterment cost of \$671,918.

Total design cost was \$ 2,329,740 of which Federal cost was \$2,142,714 (\$1,313,647 labor , \$829,067 A/E

contract). Non-federal design labor was \$187,026 (\$123,842 design labor and \$63,184 A/E contract). Total cost for supervision and administration was \$634,314 all federal cost.

At the end of FY 2001, total federal cost was \$8,570,093 and non-federal cost was \$1,271,103 including a betterment cost of \$671,918. Total project cost was \$9,841,196.

Condition at End of Fiscal Year. Construction is in progress. Total cost of existing project to September 30, 2001 was \$86,267,192. Federal costs total \$ 78,770,337; required non-federal costs were \$7,496,855. Federal betterment cost \$530,553 and non-federal betterment costs \$2,198,677.

26. LITTLE CALUMET RIVER BASIN, CADY MARSH DITCH, IN

Location. Cady Marsh is located in Lake County, Indiana. The Ditch is a tributary of the Little Calumet River system in northwest Indiana and flows through the Towns of Griffith and Highland, Indiana.

Existing Project. The Cady Marsh Ditch flood control project was authorized by Section 401 (a) of the 1986 Water Resources Development Act. The project provides for diverting flood flows from Cady Marsh Ditch to the Little Calumet River through a diversion system under Arbogast Avenue in Griffith. Specifically, the project consists of improving 1,290 feet of Cady Marsh Ditch between Colfax and Arbogast Avenues in Griffith, constructing approximately 5,000 feet of large conduct pipes under Arbogast Avenue, excavating an open channel approximately 2,850 feet long from the north end of Arbogast Avenue to the Little Calumet River, and constructing interior drainage improvements.

Local Cooperation. The local project sponsor is the Town of Griffith, IN. The local sponsor is required to provide all lands, easements and rights-of-way; complete all required utility relocations; hold and save the United States free from damages due to construction or operation of the project; provide the required interior drainage improvements; operate and maintain the completed project; and make a cash contribution toward the cost of construction.

Operations and Results During the Period. New Work: Pre-construction engineering and design was continued at a cost of \$77,791 in FY2001 (\$73,692 was for hired labor and \$4,099 was for A/E contract). There

were no non-federal expenses.

Condition at End of Fiscal Year. Pre-construction engineering and design is in progress. The total cost of the existing project to September 30, 2001 was \$1,415,565 (federal cost).

27. McCook and Thornton Reservoirs, IL

Location. The McCook Reservoir will be located near the communities of McCook, Justin and Bedford Park, Illinois at the existing Metropolitan Water Reclamation Solids Management Area. The Thornton Reservoir will be located in the community of Thornton, Illinois at the existing Thornton Quarry.

Existing Project. The project consists of converting two quarries into flood storage reservoirs. The McCook Reservoir will have a storage volume of 21,400 acre-feet (7 billion gallons); the Thornton Reservoir will have a volume of 24,200 acre-feet (7.9 billion gallons). The reservoirs will store floodwater from tunnels constructed or under construction by the U.S. Environmental Protection Agency and the Metropolitan Water Reclamation District of Greater Chicago as part of the Tunnel and Reservoir Project (TARP). Estimated project cost (2001) is \$863,000,000, including a federal cost for new work of \$647,250,000, and \$215,750,000 to be contributed by non-federal interests. The project was authorized by Section 3 of the Water Resources Development Act of 1988.

Local Cooperation. The Metropolitan Water Reclamation District of Greater Chicago will be the local sponsor and provide the required local cooperation. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, local sponsors are required to pay a cash contribution to bring the total non-federal share of the flood control improvements to twenty-five percent of the total project cost. The Project Cooperation Agreement for the McCook Reservoir was executed on May 10, 1999.

Operations and Results During Period. New Work: The cutoff wall construction contract and engineering and design effort were continued. Total costs for FY 2001 were \$8,771,254 (\$5,433,534 Federal and \$3,337,720 Non-Federal). There was no land or relocation cost. Engineering and design costs totaled \$7,622,834 (\$4,591,014 federal, \$3,031,820 non-federal)

and included \$2,398,281 (\$2,296,289 federal, \$101,992 non-federal) for hired labor; \$2,867,701 (\$483,332 federal, \$2,384,369 non-federal) in AE contract expenditures; and \$2,356,853 for work by other Corps of Engineers, (\$1,811,394 federal, \$545,459 non-federal). Construction management costs were \$104,995 (\$42,193 federal, \$62,802 non-federal). The total construction cost was \$1,043,424 (\$800,326 federal, \$243,098 non-federal).

Condition at End of Fiscal Year. Engineering and design are continuing. Construction of the overburden cut-off wall, the first construction contract, is in progress. Total costs of the existing project to September 30, 2001 were \$39,181,435 of which \$34,491,185 was federal and \$4,690,250 was non-federal.

28. North Branch, Chicago River, IL

Location. The North Branch Chicago River Basin is located north of the City of Chicago in suburban Cook and Lake Counties.

Existing Project. The project was authorized by the Water Resources Development Act of 1986 and consists of constructing two excavated floodwater storage reservoirs on the West Fork and one excavated reservoir on the Middle Fork. Section 401 of the 1986 Act also included authorization to reimburse non-federal interests 50 percent of the costs of planning and construction for three existing reservoirs on the West Fork, known as Techny Reservoirs, and the existing Mid Fork Reservoir on the Middle Fork. In July 1990, the federal government reimbursed the non-federal interests \$4,467,298 for the Techny and Mid Fork Reservoirs. The total federal cost was \$4,537,435 for these reservoirs. Reservoir 27 in the Village of Bannockburn, is located on the West Fork, 12.7 miles above its confluence with the North Branch Chicago River. It has a floodwater storage capacity of 525 acre-feet. The reservoir construction was completed in June 1990. Reservoir 29A is located 9.6 miles above the mouth of the West Fork and 3.1 miles south of Reservoir 27. The floodwater storage capacity is 575 acre-feet. Two project features, channel relocation and construction of two bridges, are a non-federal responsibility. Reservoir 29A was substantially completed in September 1994. Reservoir 15 is located near the City of Green Oaks on the Middle Fork, 22.1 miles above its confluence with the North Branch Chicago River. The floodwater storage capacity is 500 acre-feet. The reservoir is approximately 42 feet deep except in the

sedimentation pool area which is about 15 feet deeper. Construction of Reservoir 15 was completed in May 1992. The local sponsor has contributed \$550,100 for the non-federal improvements for Reservoir 29A.

Local Cooperation. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, local sponsors are required to pay a cash contribution to bring the total non-federal share of the flood control improvements to twenty-five percent of the total project cost.

Operations and Results During Period. Completed HTW construction modifications at Reservoir No. 29A, completed a contract modification for Reservoir No. 29A for non-federal improvements and initiated negotiations to settle the claim for Reservoir No. 29A. Total engineering and design cost was \$22,240, all federal hired labor. Total Construction Management cost was \$295,731 (\$295,463 federal and \$268 non-federal HTW). Total construction placement costs were \$3,603,724 (\$2,346,379 federal; \$1,256,266 non-federal HTW; and \$1,079 non-federal improvements).

Condition at End of Fiscal Year. The existing project is 100% complete. Total costs of the existing project to September 30, 2001 are \$24,371,672 of which \$22,112,587 is federal and \$2,259,085 is non-federal. This excludes the \$4,493,298 non-federal cost for the Techny and Mid Fork Reservoirs. A total \$549,022 in non-federal funds has been expended on bridge and channel betterments at Reservoir 29A. A total of \$6,320,134 in non-federal funds has been expended on investigations in connection with the clean-up of soils contaminated with lead shot pellets at Reservoirs 29A. Non-federal betterment funds in the amount of \$38,500 were expended for work on an impact assessment. A total of \$11,166 was spent at Reservoir 27 for the Illinois Tollway project.

29. O'HARE RESERVOIR, IL

Location. The reservoir is located in an unincorporated portion of Elk Grove Township in Northwestern Cook County, Illinois about 1 mile northwest of Chicago O'Hare International Airport.

Existing Project. The project consists of a 1,050 acre-foot capacity reservoir, excavated to a depth of 80 feet. The reservoir has been constructed at the

terminus of the existing system of 6.6 miles of deep tunnels, constructed under the U.S. Environmental Protection Agency and the Metropolitan Water Reclamation District of Greater Chicago Tunnel and Reservoir Project (TARP). The project was authorized by Section 401 of the Water Resources Development Act of 1986.

Local Cooperation. The local sponsor is the Metropolitan Water Reclamation District of Greater Chicago. The local cooperation agreement for the first construction contract, creek relocation, was signed on July 31, 1990. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, the local sponsor is required to pay a cash contribution of five percent of the total project costs. The local cooperation agreement for the remainder of the project, reservoir excavation and lining, was signed July 29, 1991.

Operations and Results During Period. The reservoir construction was substantially completed in 1998. Contract closeout activities were initiated and E&D effort was expended for pending required reservoir repairs. There were no real estate. FY 2001 engineering and design costs totaled \$193,587 (\$183,205 federal, \$10,382 non-federal) and included \$66,633 for hired labor (\$61,651 federal, \$4,982 non-federal); \$16,454 (\$11,054 federal, \$5,400 non-federal) in AE contract expenditures; and \$110,500 for work by other Corps of Engineers, all federal. Construction management cost was \$13,220 (federal).

Condition at End of Fiscal Year. Construction and modifications were completed and closeout activities were initiated. Total cost of the existing project to September 30, 2001 was \$38,414,196 (\$31,164,903 Federal and \$4,623,812 non-federal, and non-federal improvement costs \$2,625,481).

30. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See table 22-F.

31. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency flood control activities, repair, flood fighting and rescue work (Public Law 99, 84th Congressional antecedent legislation).

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Program Fiscal Year Costs to September 30, 2001

Disaster Preparedness \$ 193,867
Disaster Assistance (FEMA) 0

Flood control activities pursuant to Section 205 of Flood Control Act of 1965, as amended:

Fiscal year 2001 costs were \$2,198,847 federal and \$138,119 non-federal for flood control activities. A total of \$10,000 was spent on the Section 205 coordination account. Squaw Creek, Lake County, IL DPR was continued at a cost of \$25,839 federal. Fox River, McHenry Co., IL construction phase was continued at the cost of \$1,683,738 federal and \$40,649 non-Federal. Libertyville Estates, IL construction phase was continued at the cost of \$4,286 federal and \$1,552 non-federal. Kankakee River and Newton Co., (Sumava) DPR was continued at the cost of \$843 federal and \$17,519 non-federal. City of Oak Forest (Natalie Creek) DPR was continued at the cost of \$13,335 federal and \$42,354 non-federal. Stony Creek, IL DPR was continued at the cost of \$53,064 federal and \$31,200 non-federal. Valleyview DPR was discontinued at a non-federal cost of \$3,974. Deer Creek DPR was continued at \$362,378 federal and \$871 non-federal. Calumet Park DPR was terminated at \$320. Chicago Heights/Thorn Creek DPR was terminated at \$7,943. Flossmoor/Butterfield Creek DPR was terminated at \$5,559. Matteson DPR was terminated at \$11,000. Monticello DPR was continued at \$20,542.

Section 14, Emergency Streambank and Shoreline Protection:

Fiscal Year 2001 costs were \$880,607 federal and \$409,452 non-federal. A total of \$10,000 was spent on Section 14 coordination account. Lake Michigan Beach Drive, Dune Acres PDA was completed at \$33,154; Highland Park construction was continued at \$837,453 federal and \$409,452 non-federal.

Section 1135, Project modification to improve Environment:

Fiscal Year 2001 costs were \$491,252. A total of \$10,000 was spent on Section 1135 Coordination Account. A total of \$10,940 was spent on Preliminary Restoration Plan (PRP). Indiana Ridge Marsh ERR was continued at \$470,312.

Section 206, Aquatic Ecosystem Restoration:

Fiscal Year 2001 costs were \$1,253,772 federal and \$144,985 non-federal. A total of \$10,000 was spent on Section 206 Coordination Account. A total of \$3,778 was spent on Preliminary Restoration Plan. Sqaw Creek, Lake County, IL ERR was initiated at a cost of

\$12,099. Hickory Creek, Tinley Park ERR was initiated at a cost of \$8,497. Chicago Botanical Garden, IL ERR was initiated at a cost of \$58,405. Cuneo Press, Chicago River Plans and specifications were completed and construction initiated at \$79,330 federal and \$41,553 non-federal. Weed Street, Chicago River plans and specifications were completed and construction initiated at \$210,609 federal and \$25,545 non-federal. Northside PREP/Von Steuben Chicago plans and specifications were completed and initiated at \$249,056 Federal and \$77,887 non-federal. Butler Lake, IL ERR was initiated at a cost of \$162,587. Hoffman Dam, IL ERR was initiated at a cost of \$217,914. Poplar Creek, IL ERR was initiated at a cost of \$10,888. Peggy Notebaert Nature Museum Chicago PRP was initiated at a cost of \$9,568. Illinois and Michigan PRP was completed at a cost of \$1,000. Horner Park, Chicago, IL PRP was initiated at a cost of \$7,952. Paul Douglas Woods – South Barrington was initiated at a cost of \$3,664. Wolf Lake, IN ERR was initiated at a cost of \$208,425.

General Investigations

32. SURVEYS

Fiscal Year 2001 costs were \$1,226,969 federal and \$556,000 non-federal. Itemized as follows:

	<u>Federal</u>	<u>Non-federal</u>
Flood Damage		
Prevention Studies	\$ 829,199	\$ 286,292
Shoreline Protection	115,177	0
Special Studies	50,957	0
Review Authorize Projects	36,431	13,070
Miscellaneous Activities	62,500	0
Coordination Studies	132,705	256,638

33. COLLECTION AND STUDY OF BASIC DATA

Fiscal Year 2001 costs were \$61,000 federal and \$0 non-federal itemized as follows:

	<u>Federal</u>	<u>Non-federal</u>
Flood Plain Management	\$ 56,000	\$ 0
Services		
Hydrologic Studies	5,000	0

TABLE 22-A **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost To Sept. 30, 2001
1.	Burns Waterway Harbor, IN	New Work: Approp.	0	0	0	0	13,584,000

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

	(Federal Funds)	Cost	0	0	0	0	13,584,000	
		Maint:						
		Approp.	385,000	1,157,000	947,000	3,701,760	17,180,864	
		Cost	403,364	1,183,840	947,957	3,701,606	17,180,481	
	(Contributed Funds)	New Work:						
		Contrib.	0	0	0	0	15,900	
		Cost	0	0	0	0	15,900	
		Maint:						
		Contrib.	0	0	0	0	108,362	
		Cost	0	0	0	0	108,362	
2.	Burns Waterway Small Boat Harbor, IN (Federal Funds)	New Work:						
		Approp.	0	0	0	0	2,000,000	
		Cost	0	0	0	0	2,000,000	
		Maint:						
		Approp.	0	95,000	1,858,000	0	3,229,935	
		Cost	7,176	93,169	1,857,779	2,052	3,229,935	
	(Contributed Funds)	New Work:						
		Contrib.	0	0	0	0	1,770,558	
		Cost	0	0	0	0	1,770,558	
3.	Burns Waterway Harbor (Major Rehab), IN (Federal Funds)	New Work:						
		Approp.	3,557,000	(112,800)	0	0	13,384,200	
		Cost	3,948,927	7,425	0	0	13,384,161	
	(Contributed Funds)	New Work:						
		Contrib.	0	0	0	0	0	
		Cost	0	0	0	0	0	
4.	Calumet Harbor and River, IL and IN (Federal Funds)	New Work:						
		Approp.	0	0	0	0	22,578,567	1/
		Cost	0	0	0	0	22,578,567	1/
		Maint:						
		Approp.	912,000	1,333,100	3,326,500	3,383,769	41,618,168	2/
		Cost	867,649	1,386,142	3,322,279	3,388,639	41,613,769	2/
		Rehab:						
		Approp.	0	0	0	0	5,428,001	3/
		Cost	0	0	0	0	5,428,001	3/
	(Contributed Funds)	Maint:						
		Contrib.	0	0	0	0	836,667	
		Cost	0	0	0	0	836,667	
5.	Chicago Harbor, IL (Federal Funds)	New Work:						
		Approp.	0	0	0	0	4,788,827	4/
		Cost	0	0	0	0	4,788,827	4/
		Maint:						
		Approp.	4,562,000	4,176,000	2,601,400	3,396,561	50,511,507	
		Cost	4,512,080	4,450,229	2,548,572	3,306,885	50,357,588	

CHICAGO, ILLINOIS, DISTRICT

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost To Sept. 30, 2001
		Rehab:					
		Approp.	0	0	0	0	1,326,600
		Cost	0	0	0	0	1,326,600
	(Harbor and Dam Funds)	Maint:					
		Approp.	0	0	0	0	160,000
		Cost	0	0	0	0	160,000
6.	Chicago River, IL (Federal Funds)	New Work:					
		Approp.	0	0	0	0	1,500,565 5/
		Cost	0	0	0	0	1,500,565 5/
		Maint:					
		Approp.	306,000	271,000	350,500	328,222	16,758,116 6/
		Cost	298,532	285,428	348,484	329,389	16,752,131 6/
7.	Indiana Harbor, IN (Federal Funds)	New Work:					
		Approp.	0	0	0	0	4,897,148 7/
		Cost	0	0	0	0	4,897,148 7/
		Maint:					
		Approp.	770,000	526,000	259,500	409,077	14,870,565 8/
		Cost	762,311	480,518	424,600	408,235	14,869,594 8/
	(Contributed Funds)	New Work:					
		Contrib.	0	0	0	0	12,500
		Cost	0	0	0	0	12,500
8.	Indiana Harbor, Confined Disposal Facility, IN (Federal Funds)	New Work:					
		Approp	0	600,000	1,560,000	2,758,000	4,918,000
		Cost	0	567,829	1,455,637	1,297,280	3,320,746
	(Contributed Funds)	New Work:					
		Contrib.	0	0	0	100,000	100,000
		Cost	0	0	0	94,322	94,322
9.	Lake Michigan Diversion, IL (Federal Funds)	Maint:					
		Approp.	782,000	990,000	802,000	804,200	6,467,200
		Cost	700,799	1,076,336	801,023	804,167	6,466,067
10.	Michigan City Harbor, IN (Federal Funds)	New Work:					
		Approp.	0	0	0	0	1,543,646 9/
		Cost	0	0	0	0	1,543,646 9/
		Maint:					
		Approp.	126,000	155,000	1,543,500	394,407	13,994,961
		Cost	136,729	157,363	1,549,497	387,185	13,986,557
		Rehab:					
		Approp.	0	0	0	0	1,618,670
		Cost	0	0	0	0	1,618,670
	(Contributed Funds)	New Work:					
		Contrib.	0	0	0	0	30,512
		Cost	0	0	0	0	30,512
		Maint:					
		Contrib.	0	0	0	0	55,000
		Cost	0	0	0	0	55,000

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost To Sept. 30, 2001
11.	Waukegan Harbor, IL (Federal Funds)	New Work:					
		Approp.	0	0	0	0	823,026 10/
		Cost	0	0	0	0	823,026 10/
		Maint:					
		Approp.	831,000	1,333,000	773,000	1,055,832	17,950,600 11/
		Cost	707,773	1,536,030	772,562	1,051,616	17,918,509 11/
15.	Casino Beach, IL (Federal Funds)	New Work:					
		Approp.	(12,000)	(140,000)	0	0	2,525,000
		Cost	(144,728)	0	0	0	2,465,517
	(Contributed Funds)	New Work:					
		Contrib.	0	(233,914)	333,395	0	2,499,481
		Cost	209,080	69	333,395	0	2,499,451
16.	Chicago Shoreline, IL (Federal Funds)	New Work:					
		Approp.	7,392,000	14,382,800	16,539,000	20,193,000	68,459,800
		Cost	7,285,287	11,350,949	24,018,363	20,220,973	68,429,265
	(Contributed Funds)	New Work:					
		Contr.Credits	0	8,538,347	4,900,000	1,750,000	15,188,347
		Cost	0	8,538,347	4,900,000	1,750,000	15,188,347
17.	Illinois Beach State Park, IL (Federal Funds)	New Work:					
		Approp.	0	0	(1,292)	182,121	194,029
		Cost	0	0	0	0	11,908
18.	Indiana Dunes National Lakeshore, Beverly Shores, IN (Federal Funds)	New Work:					
		Approp.	0	0	0	0	660,000
		Cost	0	0	0	0	660,000
		Maint:					
		Approp.	1,700,000	0	0	0	2,296,000
		Cost	435,235	1,258,963	5,802	0	2,296,000
19.	Indiana Shoreline Erosion, IN (Federal Funds)	New Work:					
		Approp.	3,000,000	700,000	33,000	838,000	8,702,800 12/
		Cost	3,179,721	1,827,816	221,338	815,267	8,671,745 12/
22.	Chicago River North Branch, IL (Federal Funds)	New Work:					
		Approp.	0	0	0	0	191,884
		Cost	0	0	0	0	191,884
		Maint:					
		Approp.	0	0	41,000	113,500	2,766,850
		Cost	4,060	453	41,561	112,519	2,765,862
	(Contributed Funds)	New Work:					
		Contrib.	0	0	0	0	40,000
		Cost	0	0	0	0	40,000
		Maint:					
		Contrib.	0	0	48,000	0	1,785,441
		Cost	0	0	21,364	121,403	1,744,198

CHICAGO, ILLINOIS, DISTRICT

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost To Sept. 30, 2001
23.	DesPlaines River, IL (Federal Funds)	New Work: Approp. Cost	140,000 0	(91,032) 46,819	346,000 334,617	539,000 484,714	933,968 866,150
	(Contributed Funds)	New Work: Contrib. Cost	0 0	0 0	87,129 84,409	227,860 178,843	314,989 263,252
24.	Lake George, Hobart, IN (Federal Funds)	New Work: Approp. Cost	3,500,000 254,703	0 62,412	(3,484,000) 0	0 0	1,320,000 1,311,977
25.	Little Calumet River, IN (Federal Funds)	New Work: Approp. Cost	8,378,000 8,336,116	5,657,000 3,269,332	8,061,000 10,332,244	8,289,000 8,570,093	79,524,300 13/ 79,439,590 13/
	(Contributed Funds Required)	New Work: Contrib. Cost	962,600 1,028,481	700,000 464,413	400,000 704,323	540,272 599,185	6,445,872 6,347,937
	(Non-Federal Improvements)	New Work: Contrib. Cost	402,000 424,831	39,000 20,723	550,000 477,000	591,000 671,918	2,207,500 2,196,677
26.	Little Calumet River, Cady Marsh Ditch, IN (Federal Funds)	New Work: Approp. Cost	122,000 64,346	0 106,550	0 129,065	350,000 77,791	1,692,000 1,415,565
27.	McCook and Thornton Reservoirs, IL (Federal Funds)	New Work: Approp. Cost	0 3,084,398	2,908,000 3,762,786	3,859,000 4,457,250	5,362,000 5,433,534	34,503,000 34,491,185
	(Contributed Funds)	New Work: Contrib. Cost	0 0	0 0	6,000,000 1,352,530	1,625,000 3,337,720	7,625,000 4,690,250
28.	North Branch Chicago River, IL (Federal Funds)	New Work: Approp. Cost	518,000 346,271	135,000 274,064	1,100,000 1,182,608	2,565,000 2,664,082	24,870,500 14/ 24,776,669 14/
	(Contributed Funds Required)	New Work: Contrib. Cost	0 0	0 0	(37,422) (38,167)	0 0	2,259,832 2,259,085
	(Non-Federal Improvements)	New Work: Contrib. Cost	0 0	0 0	(1,078) 0	1,080 1,079	550,102 550,101
	(Non-Federal Lead Shot Clean-up)	New Work: Contrib. Cost	0 48,090	0 0	0 0	1,242,100 1,256,534	7,577,270 7,576,668
	(Non-Federal Impact Assessment)	New Work: Contrib. Cost	0 0	0 0	0 0	0 0	38,500 38,500
	(Non-Federal Res. 27 IL Tollway)	New Work: Contrib. Cost	0 1,448	(8,834) 0	0 0	0 0	11,166 11,166

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost To Sept. 30, 2001
29.	O'Hare Reservoir, IL (Federal Funds)	New Work: Approp.	3,447,000	930,000	(380,000)	275,000	31,272,000
		Cost	3,987,380	970,892	(314,661)	196,425	31,164,903
	(Contributed Funds Required)	New Work: Contrib.	0	0	70,000	0	5,131,200
		Cost	354,577	115,260	153,268	10,382	4,623,812
	(Non-Federal Improvements)	New Work: Contrib.	750,000	280,000	0	0	2,810,000
		Cost	1,400,233	677,663	20,524	0	2,625,481
1	Includes \$855,973 for previous projects.			10	Includes \$218,233 for previous projects.		
2	Excludes contributed funds in settlement pursuant to decree (No. 54-C-1608) regarding removal of flue dust and includes \$45,230 for previous projects.			11	Includes \$15,711 for previous projects.		
3	Includes \$689,001 in settlement pursuant to decree regarding removal of flue dust.			12	Includes \$107,000 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985.		
4	Includes \$446,005 for previous projects.			13	Includes \$670,529 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985.		
5	Includes \$955,886 for previous projects.			14	Includes \$489,310 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985.		
6	Includes \$109,463 for previous projects.						
7	Includes \$60,668 for previous projects.						
8	Includes \$2,509 for previous projects.						
9	Includes \$287,389 for previous projects.						

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	BURNS WATERWAY HARBOR, IN (See Section 1 and 3 of Text)	
Oct. 27, 1965	Provides for breakwater and channel to present dimensions and depths, a north breakwater, west bulkhead, approach channel and outer harbor, east and west harbor arms.	Public Law, 89-298, H. Doc. 160. 88 th Cong., 1 st Sess.
	BURNS WATERWAY SBH, IN (See Section 2 of Text)	
Jul. 14, 1960 Sec. 107	Provides for a 700-foot north breakwater, a 950-foot west breakwater an entrance channel 11-feet deep, a harbor-of-refuge area 10 feet deep and a channel in Burns Waterway 6 feet deep.	Detailed Project Report detailed February 1983.
	CALUMET HARBOR AND RIVER, IL AND IN (See Section 4 of Text)	
Mar. 3, 1899	Outer harbor protected by breakwaters.	Annual Report, 1896, pp. 2584 et Seq. and H. Doc. 277, 54 th Cong., 1 st Sess.
Jun. 13, 1902 Mar. 3, 1905	Five turning basins.	H. Doc. 172, 54 th Cong., 2 nd Sess.
Jun. 25, 1910	Provided for shape and dimensions of turning basins.	H. Doc. 346, 60 th Cong., 1 st Sess.
Sep. 22, 1922 Aug. 30, 1935 ^{1,2}	Consolidated the two projects for Calumet Harbor and Calumet River. Detached breakwater, dredging outer harbor to existing project depth and dimensions; deepen river entrance channel and river to existing project depths; widen and straighten river channel; five turning basins to same depth as adjacent channel.	H. Doc. 494, 72 nd Cong., 2 nd Sess.
Aug. 30, 1935	Dredging area A and B in south end of Lake Calumet and an entrance channel 300 feet wide and 21 feet deep.	H. Doc. 180, 73 rd Cong., 2 nd Sess.
Mar. 2, 1945 ³	An approach channel to harbor 3,200 feet wide and 28 feet deep through shoals outside breakwater and closing existing gap between breakwaters.	H. Doc. 233, 76 th Cong., 1 st Sess.
Jul. 14, 1960 ¹³	Depth of 29 feet in lake approach to 28 feet in outer harbor, and 27 feet in river entrance up to E.J. & E. Ry. Bridge.	H. Doc. 149, 86 th Cong., 1 st Sess. ⁸
Oct. 23, 1962 ¹³	Deepen, widen and straighten channel in Calumet River from E.J. and E. Ry. Bridge, to and including turning basins 1, 3 and 5 to 27 feet; enlarge turning basins 3 and 5; channel into Lake Calumet to 27 feet deep for 3,000 feet and a width of 1,000 feet; and eliminate turning basins 2 and 4 from project.	H. Doc. 87 th Cong., 2 nd Sess. ⁵
Oct 27, 1965 ¹³	Modification of Act of Oct 23, 1962. Protection for Elgin, Joliet and Eastern Railway Bridge over the Calumet River, to permit dredging to full width of the south draw to depth of 27 feet, and temporary protection for center pier and south abutment of the New York, Chicago and St. Louis Railroad Bridge (Nickel Plate) to permit dredging of full width of south bridge draw to depth of 27 feet prior to its replacement.	H.R. 973, 89 th Cong., 1 st Sess.

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
CHICAGO HARBOR, IL (See Section 5 of Text)		
Jul. 11, 1870	Inner breakwaters and inner basin.	H. Ex. Doc. 114, 41 st Cong. 2 nd Sess. and Annual Report 1870, pp. 1562-1567
Jun. 14, 1880	Exterior breakwater.	Annual Report 1870, pp. 1562-1567
Mar. 3, 1899	Present project depth in basin and entrance to Chicago River.	Annual Report 1897, pp. 2790-2791
Jul. 25, 1912	Shore-arm and southerly extension of exterior breakwater	H.Doc 710, Cong, 2 ^d Sess
Mar. 2, 1919	Modification of area to be dredged in inner basin.	H.Doc 1303, 64 th Cong, 1 st Sess.
Mar 3, 1931	Shore-arm extension of exterior breakwater transferred to Lincoln Park Commissioners.	Public Law 797, 71 st Cong
Mar. 2, 1945	Resumption of jurisdiction over shore-arm extension breakwater and over certain navigable waters in Lake Michigan which lie in northwestern part of outer harbor.	Public Law 14, 79 th Cong.
Oct. 23, 1962	Deepen a lake approach channel to 29 by 800 feet wide for 6,600 feet; deepen channel and maneuver area inside harbor entrance to 28 by 1,300 feet wide.	H.Doc. 485, 87 th Cong., 2 nd Sess. ⁴
Dec. 4, 1981	Provides for lock operations and maintenance responsibilities in the	Sec. 107 of P.L. 97-88
Jul. 30, 1983	interests of navigation.	P.L. 98-63
CHICAGO RIVER, IL (See Section 6 of Text)		
Mar. 3, 1899	For project depth of 21 feet in lieu of that fixed by act of Jun 3, 1896.	Specified in act.
Jun. 13, 1902	Turning basins	Specified in act.
Mar. 2, 1907	Interpreted by Chief of Engineers, April 11, 1908, as adopting new work of the then existing project for 21-foot depth.	H. Doc. 95, 56 th Cong. 1 st Sess. (Annual Report, 1900, p. 3863 and Annual Report 1909, p. 709)
Mar. 2, 1919	Eliminated all work except maintenance of main river.	H. Doc. 1294, 64 th Cong. 1 st Sess.
Jul. 24, 1946	Dredging channel 9 feet deep to within 30 feet of existing bulkheads and river banks from North Ave. to Belmont Ave., thence 9 feet deep and 50 feet wide to Addison St.	H. Doc 767, 78 th Cong., 2 nd Sess. ^{6,7}
INDIANA HARBOR, IN (See Section 7 of Text)		
Jun 25, 1910	Maintenance of outer harbor. Maintenance of inner harbor channel when deeded free of cost to and accepted by the United States.	H. Doc. 1113, 60 th Cong., 2 nd Sess.
Mar. 4, 1913	Breakwaters.	H. Doc. 690, 62 nd Cong., 2 nd Sess.
Mar 2, 1919	Lighthouse crib, present length and alignment easterly and northerly breakwaters.	Rivers and Harbors Committee Doc. 6, 65 th Cong., 2 nd Sess.

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Mar. 20, 1922 Mar. 3, 1925	Reduce channel length to be maintained in extension to Lake George Authorized Secretary of War to modify project so far as relates to length and alignment of breakwaters and to sell Youngstown Steel and Tube Co. about 1,180 linear feet of shoreward end of existing north breakwater.	Public Law 176, 67 th Cong
Mar. 2, 1929 July 3, 1930 ¹⁰	Accept 2.3 acres of land for construction of the Forks Turning Basin. Existing project channel width and depth in Lake George Branch and turning basin at the Forks	Rivers and Harbors Committee Doc. 21, 71 st Cong., 2 nd Sess.
Jul. 30, 1932	Authorized Secretary of War to sell to Inland Steel Co., about 1,903 linear feet of southerly end of existing east breakwater.	Public Law 219, 72 nd Cong.
Aug. 30, 1935 ¹¹	Extended easterly breakwater, dredge entrance channel and outer harbor, deepen channel between bulkhead fills, widen main stem of canal and portion of Calumet River Branch to 141 st St.	Rivers and Harbors Committee Doc. 29, 72 nd Cong., 1 st Sess.
Aug. 28, 1937	Modified conditions of local cooperation required before enlargement of Indiana Harbor Canal is undertaken by United States.	Rivers and Harbors Committee Doc. 13, 75 th Cong., 1 st Sess.
Jul. 14, 1960	Increase authorized depths of 29 feet in outer harbor entrance channel, 28 feet in outer harbor and 27 feet in canal entrance channel to first E. J. and E. Ry. Bridge.	H. Doc. 195, 86 th Cong. 1 st Sess.
Oct. 27, 1965 ¹²	Deepen main canal from landward end of canal entrance channel to a point lakeward of Dickey Place Bridge over a modified channel width of 190 feet, except through bridge openings.	H. Doc. 227, 89 th Cong. 1 st Sess.
LAKE MICHIGAN DIVERSION (See Section 8 of Text)		
Nov. 17, 1986	Responsible for monitoring of Lake Michigan Diversion.	Section 1142, WRDA of 1986
MICHIGAN CITY HARBOR, IN (See Section 9 of Text)		
	East breakwater and old east pier enclosing the outer basin.	Recommendations of a Board of Engineers, Annual Report 1870, p. 123.
	Extension of east pier.	Reports of Boards of Engineers, Annual Rpt 1851, pp. 2187-2189; Annual Report 1882, p. 2264-2266.
Mar. 3, 1889	Extend east pier and construct detached breakwater.	Annual Report 1897, pp. 2903-2904.
Mar 3, 1905	Lower turning basin. Rebuild west pier as at present location. Present project dimensions of entrance channel.	Joint Resolution of Cong. approved May 13, 1908. Public Law 23.
Jun. 21, 1927	Existing project depth in channel, and in lower and middle turning basins, eliminated improvement of Trail Creek above middle turning basin and uncompleted portion of detached breakwater, abandonment of old east breakwater and old east pier enclosing outer basin.	H. Doc. 279, 69 th Cong., 1 st Sess.

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Aug. 30, 1935	Restore and repair westerly 1,000 feet of east breakwater, dredging outer basin and enlarging entrance to basin through east pier.	River and Harbors Committee Doc 34, 74 th Cong., 1 st Sess.
Jul. 14, 1960 Sec. 107	Dredge river channel 50 feet wide and 6 feet deep from upper turning basin to E. Street Bridge.	Detailed Project Report dated June 1965 ⁸ .
WAUKEGAN HARBOR, IL (See Section 10 of Text)		
Jun. 14, 1880 Aug. 3, 1882	Parallel piers and basins. Modified location of harbor entrance.	Annual Rpt 1880, p. 142 Annual Report 1882, pp. 277, 2162.
Jun. 13, 1902	Detached breakwater, extend piers, increase width of harbor at inner end of north pier and dredge channel and basin to depth of 20 feet.	H. Doc. 343, 56 th Cong., 1 st Sess.
Jul. 3, 1930	Extension of breakwater to shore, dredging near outer end of north piers and enlarging inner basin.	Rivers and Harbors Committee Doc 27, 71 st Cong., 2 nd Sess.
Mar. 2, 1945	Dredge an entrance channel to existing project dimensions from outer end of north pier to project depth in lake and dredge an anchorage area in southwest corner of inner basin to existing project depth. Abandonment of dredging triangular area in southwest corner of inner basin to 18 feet deep.	H. Doc. 116, 77 th Cong., 1 st Sess.
Dec. 17, 1970 Sec. 201 Oct. 27, 1965	Provides for deepening the existing entrance channel in the outer harbor to 25 feet and extending to the depth in Lake Michigan, at widths varying from 380 feet to 500 feet; deepening the channel between piers to a depth of 23 feet at a width of 180 feet and deepening the inner basin to 23 feet and extending its limits approximately 275 feet northward.	H. Doc. 368, 90 th Cong., 2 nd Sess.
CASINO BEACH, IL (See Section 14 of Text)		
Nov. 17, 1986	Provides for encasing approximately 1,800 feet of the existing Casino Beach jetty in steel sheet piling and a concrete cap and replacing beach fill.	Feasibility Report dated Feb. 1983.
ILLINOIS BEACH STATE PARK, IL (See Section 16 of Text)		
Nov. 17, 1986	Provides for 46 offshore breakwaters approximately 150 feet long, initial beach nourishment of 100,000 cubic yards and periodic nourishment of 100,000 cubic yards at 5-year intervals.	Feasibility Report dated June 1982.
INDIANA DUNES NATIONAL LAKESHORE, BEVERLY SHORES, IN (See Section 17 of Text)		
Dec. 4, 1981	Provides for emergency shore protection repairs to stone revetment initially constructed in 1973.	Public Law 97-88
Jul. 30, 1983	Provides for operations and maintenance of shore protection measures.	Public Law 98-63

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	INDIANA SHORELINE EROSION, IN (See Section 18 of Text)	
Nov. 17, 1986	Beach nourishment of 2-mile reach of shore west of Michigan City Harbor, Indiana	Sec. 501, WRDA 1986
	LAKE GEORGE, HOBART, IN (See Section 22 of Text)	
Nov. 17, 1986	Removal of silt, aquatic growth and construction of silt traps.	Sec. 602, WRDA1986.
	LITTLE CALUMET RIVER, IN (See Section 23 of Text)	
Nov 17, 1986	Provides for levee construction, a diversion control structure at the mouth of Hart Ditch. Permanent evacuation of a portion of the Black Oak area of Gary and non-structural flood proofing measures in Gary.	Sec. 401, WRDA 1986
	LITTLE CALUMET RIVER BASN, CADY MARSH DITCH, IN (See Section 24 of Text)	
Nov. 17, 1986	Widening and deepening 1,250 feet of Cady Marsh Ditch, installing 4,880 feet of pipe and excavating 2,850 feet of open channel.	Feasibility Report dated April 1984
	McCOOK AND THORNTON RESERVOIRS, IL (See Section 25 of Text)	
Nov. 17, 1988	Provides for construction of two floodwater storage reservoirs in the quarries of the same name.	Sec. 3, WRDA 1988
	NORTH BRANCH CHICAGO RIVER, IL (See Sections 21 and 26 of Text)	
Nov. 17, 1986	Construction of three reservoirs and reimbursement to locals for 50% of the costs of Techny and Mid-Fork Reservoirs	H. Doc. 100-72, 100 th Cong., 1 st Sess., Sec. 401, WRDA 1986.
Dec. 31, 1970	Clearing fallen trees, roots and other debris and objects which contribute to flooding.	River and Harbor Act (Sec. 116)
	O'HARE RESERVOIR, IL (See Section 27 of Text)	
Nov. 17, 1986	Provides for a 1,050 acre-foot excavated reservoir.	Sec. 401, WRDA 1986

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Included in Public Works Administrative Program Sep. 6, 1943 and Dec. 16, 1933. 2. Uncompleted portion was deauthorized in 1977 (dredging in front of U.S. Steel Corp.) 3. Uncompleted portion was deauthorized in 1977 (breakwater closure). 4. Contains latest map of harbor. Uncompleted portion is inactive. 5. Contains latest map of river. 6. Latest published map is in Annual Report for 1914, opposite p. 2928. | <ol style="list-style-type: none"> 7. Contains latest published map of North Branch above North Ave. 8. Contains latest published map. 9. Completed under previous project. 10. Uncompleted portion was deauthorized in 1977 (widen and deepen Lake George Branch). 11. Include in Public Works Administration Program Sep. 6, 1933 and Jul. 25, 1934. Uncompleted portion was deauthorized in 1977 (widen and deepen main canal and Calumet River Branch). 12. Project deauthorized in 1977. 13. Project deauthorized in 1989. |
|---|--|

TABLE 22-C **EXISTING NAVIGATION PROJECTS**

See Section In Text	Project	Item	Length (feet)	Width (feet)	Depth (feet)
1.	Burns Waterway Harbor, IN	North Breakwater	4,630	-----	-----
		West Breakwater	1,200	-----	-----
		Approach Channel	2,200	400	30
		Outer Harbor	3,700	Varies	28
		East Harbor Arm	2,100	620	27
		West Harbor Arm	3,800	620	27
2.	Burns Waterway SBH, IN	North Breakwater	678	-----	-----
		West Breakwater	1,043	-----	-----
		Approach Channel	1,200	200	11
		Burns Waterway	5,593	100	9
4.	Calumet Harbor and River, IL and IN	Northerly Crib Breakwater	6,714	-----	-----
		Southerly Steel Breakwater	5,007	-----	-----
		North Pier	2,450	-----	-----
		Chicago Confined Disposal Facility	2,979	-----	-----
		Approach Channel	9,700	3,200	29
		Outer Harbor	10,500	3,000	28
		River Entrance	3,000	290	27
		Elgin, Joliet & Eastern Railway Bridge to turning basin No. 3	21,000	200 and variable	27 earth 28 rock
		Turning Basin No. 3 to Turning Basin No.5	8,000	Variable	27
		Approach into Lake Calumet	4,000	400	27
		Extension in Lake Calumet	3,000	1,000	27
		Turning Basins 1, 3 and 5	-----	-----	27
5.	Chicago Harbor, IL	Shore Arm Extension	2,250	-----	-----
		Exterior Breakwater	5,421	-----	-----
		Exterior Breakwater Southerly Extension	4,944	-----	-----
		North Inner Breakwater	4,034	-----	-----
		South Inner Breakwater	2,544	-----	-----
		North Pier	960	-----	-----
		Approach Channel	6,600	800	29
		Channel and maneuver	2,200	1,300	28
		Lock	600	80	23
		Inner Basin	1,270	740	21
		Entrance Channel	7,300	190-470	21
6.	Chicago River, IL	Main Branch of Chicago River	3,800	190-390	21
		North Branch of Chicago River	11,100	91-390	21
		North Branch Canal	5,500	56-210	21
		North Branch Turning Basin	-----	-----	21

TABLE 22-C EXISTING NAVIGATION PROJECTS

See Section In Text	Project	Item	Length (feet)	Width (feet)	Depth (feet)
7.	Indiana Harbor, IN	Northerly Breakwater	1,120	-----	-----
		Easterly Breakwater	2,525	-----	-----
		Approach Channel	7,200	800	29
		Outer Harbor	7,200	Varies	28
		Entrance Channel	3,600	65-280	27
		Main Channel	7,400	61-210	22
		Turning Basin	-----	-----	22
		Lake George Branch	3,700	64-160	22
		Calumet River Branch	2,500	160-260	22
9.	Michigan City Harbor IN	Detached Breakwater	1,304	-----	22
		West Pier	835	-----	-----
		East Pier	2,276	-----	-----
		East Breakwater	1,000	-----	-----
		Entrance Channel	1,900	150-425	18
		Main Channel	2,400	120-150	18
		Outer Basin	900	900	8-12
		Trail Creek	3,000	50-100	8
		Trail Creek	2,300	50	6
10.	Waukegan Harbor, IL	North Breakwater and Shore Connection	1,896	-----	-----
		North Pier into North Revetment	2,074	-----	-----
		South Pier	3,111	-----	-----
		Entrance Channel	3,250	390	22
		Channel to Inner Basin	1,700	200	18
		Inner Basin	1,650	375-500	18
		Anchorage Area	----- ¹	----- ¹	8

¹Area of about 6 acres.

TABLE 22-D OTHER AUTHORIZED BRIDGE ALTERATION

Project	For Last Full Report See Annual Report For	<u>Cost to September 30, 2001</u>	
		Construction	Operation and Maintenance
Calumet River Bridges ¹	1967	\$1,625,068	_____

¹Transferred to Department of Transportation in accordance with Section 6(g) of the Act of October 16, 1966.
P.L. 89-670

TABLE 22-E OTHER AUTHORIZED BEACH EROSION PROJECTS

Project	For Last Full Report See Annual Report For	<u>Cost to September 30, 2001</u>	
		Construction	Operation and Maintenance
Mt. Baldy, Indiana Dunes National Lakeshore, IN	1984	\$1,500,000	_____
Hollywood-Ardmore Beach, Chicago, IL	1982	237,271	_____
Evanston, IL	1979	766,052	_____
Lake Michigan-Lake Bluff, IL	1976	244,889	_____
Lake Michigan-Lake Forest, IL ¹	1975	65,611	_____
Illinois Shore of Lake Michigan, Kenilworth, IL ²	1975	5,200	_____

¹Authorized by River and Harbor Act of 1954.

²Uncompleted portion deauthorized in 1977.

TABLE 22-F OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project		For Last Full Report See Annual Report For	<u>Cost to September 30, 2001</u>	
			Construction	Operation and Maintenance
Lake Michigan, Edgewater/Rogers Park Communities, Chicago, IL	1989		\$2,062,347	_____
Little Calumet River, IL	1984		583,000	_____
Kankakee River Ice Management		1993	44,791	_____

TABLE 22-G

DEAUTHORIZED PROJECTS

	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Illinois Shore of Lake Michigan, Winnetka, IL	1975	1977	----	----
Illinois Shore of Lake Michigan, Chicago, IL	1975	1977	----	----
Kankakee River, IL and IN				
Levee between Shelby Bridge and Baum's Bridge in IN	1938	Nov 17, 1986	----	----
Little Calumet River, IL and IN				
Little Calumet River and Tributaries, IL and IN	1968	Nov 17, 1986	53,136	----
Calumet Harbor and River, IL and IN				
Widening and straightening the Calumet River in the vicinity of 106 th Street and closing the gap between breakwaters, and dredging minor shoals in the outer harbor.	1990	Jan 1, 1990	----	----
Wilmington Ice Control Demonstration	----	Nov 18, 1991	----	----

NASHVILLE, TN, DISTRICT

This district comprises portions of southern Kentucky, southwestern Virginia, western North Carolina, northern Georgia and Alabama, northeastern Mississippi and practically

all of Tennessee except western portion, and embraces drainage basins of Tennessee and Cumberland Rivers and their tributaries.

IMPROVEMENTS

Navigation	Page
1. Cumberland River, TN and KY.....	23-2
2. Kentucky Lock.....	23-3
3. Tennessee River, TN, AL and KY.....	23-3
4. Tennessee-Tombigbee Waterway, AL and MS.....	23-4
5. Navigation Work Under Special Authorization	23-4

Alteration of Bridges

6. Authorized Alteration of Bridges.....	23-4
--	------

Flood Control

7. Big South Fork National River and Recreation Area, KY and TN	23-4
8. Black Fox, Murfree & Oaklands Springs, TN	23-5
9. Hamilton County, TN.....	23-5
10. Martins Fork Lake, KY	23-5
11. Middlesboro, Cumberland River Basin, KY	23-6
12. Tug and Levisa Forks of the Big Sandy River and Cumberland River, W VA, VA and KY.....	23-6
13. Ohio River Basin (Nashville Dist.)	23-6
14. Inspection of completed flood control projects	23-6
15. Flood control work under special authorization.....	23-7

Multiple-Purpose Projects, Including Power

16. Center Hill Lake, Ohio River Basin, TN.....	23-7
17. Dale Hollow Lake, Ohio River Basin, TN and KY.....	23-7
18. J. Percy Priest Dam and Reservoir, Ohio River Basin, TN	23-7
19. Laurel River Lake, Ohio River Basin, KY.....	23-8
20. Wolf Creek Dam - Lake Cumberland, Ohio River Basin, KY	23-8

General Investigations

21. Surveys.....	23-8
22. Collection and study of basic data	23-9
23. Preconstruction Engineering and Design	23-9

Tables	Page
Table 23-A Cost & Financial Statement.....	23-10
Table 23-B Authorizing Legislation	23-13
Table 23-C Other Authorized Navigation Projects.....	23-16
Table 23-D Not Applicable	
Table 23-E Other Authorized Flood Control Projects.....	23-17
Table 23-F Other Authorized Multiple-Purpose Projects, Including Power.....	23-17
Table 23-G Deauthorized Projects	23-18
Table 23-H Cumberland River, TN & KY, Principal Features.....	23-19
Table 23-I Tennessee River Lock Dimensions.....	23-21
Table 23-J Tennessee River Total Cost of Existing Project	23-23
Table 23-K Ohio River Basin (Nashville District) Local Protection	23-23
Table 23-L Reservoirs	23-23
Table 23-M Inspection of Completed Flood Control Projects	23-24
Table 23-N Flood Control Work Under Special Authorization	23-24

Navigation

1. CUMBERLAND RIVER, TN AND KY

Location. Formed by junction of Poor and Clover Forks in Harlan County, KY, about 694.2 miles above its mouth, and flows west to Burnside, KY, from whence it makes a loop southwestward into Tennessee, passes Nashville, and returns northwestward to Kentucky, emptying into Ohio River near Smithland, KY (See Geological Survey base maps of Tennessee and Kentucky.)

Previous projects. For details see pages 1898 and 1901 of Annual Report for 1915, and page 1208 of Annual Report for 1938, and pages 1069 and 1070 of Annual Report for 1962.

Existing project. Below Nashville: Improvement of Cumberland River between mouth and Nashville was authorized for 9-foot navigation; increased project depth to be obtained by construction of three moderate height dams with lockage facilities, designated as Kuttawa (Eureka), Dover, and Cheatham, to replace existing locks A to F inclusive below Nashville and lock 1 above Nashville. (See table 23-B for authorizing legislation.) Subsequent authorities provide for construction of hydroelectric power-generating facilities at Cheatham Dam, river mile 148.7, and modification of project for navigation on Cumberland River, TN and KY, to provide, in lieu of previously authorized works at Kuttawa, mile 32.2, and Dover, mile 100.1, for construction of a multiple-purpose improvement consisting of a dam, lock, and powerplant near mile 30.6 on lower Cumberland River and a canal for navigation and other purposes connecting this reservoir with reservoir formed by Kentucky Dam on the Tennessee River. The project is known as Barkley Dam and Lake Barkley. Provision of interconnecting canal, involving excavation of a channel through narrow watershed divide about 2.5 miles upstream from damsite, permits alternative routes available for navigation between either Cumberland or Tennessee Rivers and Ohio River, and affords integrated operation of Barkley and Kentucky Reservoirs through diversion of flows in interests of flood control and power production. Cost of modified project for 9-foot navigation and multiple-purpose development is \$178,181,406 Federal funds and \$102,966 non-Federal funds for recreation facilities under the completed projects program. (See table 23-H for listing of principal features.) Under flood conditions as regulated by upstream reservoirs, extreme fluctuation in stage of river below Nashville, TN, varies at different localities from about 16 to 55 feet above minimum pool levels. Ordinary fluctuations vary with power flows from as much as the allowable 3-foot drawdown below normal pool elevation 385 at Cheatham Lock and Dam to a range of about 7 feet at Nashville. Seasonal variation in normal headwater levels at Lake Barkley is 5 feet, which in combination with power flows produces fluctuations up to 10 feet below Cheatham Lock and Dam. Above Nashville: See pages 1693 thru 1696 of Annual Report for 1950 for information including statistical data on locks and dams 1 to 17 and 21. Completion information is shown on

pages 1454 of the report for 1951. See Table 23-B for Authorizing Legislation. Construction of Old Hickory, Carthage, and Celina Dams above Nashville was also authorized for navigation and power. The dam and reservoir authorized for construction on Cumberland River near Carthage, TN, has been redesignated as Cordell Hull Dam and Reservoir. Cost of Old Hickory and Cordell Hull projects, including locks, is \$132,140,904. (See table 23-H at end of chapter for listing of principal features.) Celina Dam was deauthorized in 1995. Under flood conditions as presently regulated, including effect of surcharge operation of Old Hickory project, extreme fluctuations of stage in this section of river vary from a range of 35 feet at Nashville (mile 191) to a maximum of 46 feet immediately below Old Hickory Dam (mile 216.2), and from an 8-foot variation in headwater at dam to 36 feet in vicinity of Carthage, TN, (mile 313.5), present head of navigation; with variations up to 35 feet at Celina, TN (mile 380.8) and 29 feet in tail water at Wolf Creek Dam (mile 460.9). Maximum fluctuations under ordinary conditions from power flows vary from about 7 feet at Nashville to 14 and 3 feet, respectively, in tailwater and headwater of Old Hickory Dam, and at other key points as follows: 13 feet at Carthage; 18 feet at Celina; and 19 feet at Wolf Creek Dam. Further details on project authorization for river sections below and above Nashville as shown on Table 23-B.

Local cooperation. Under modified project for 9-foot navigation and multiple-purpose development, recreation features of reservoir components are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Terminal facilities. There are 42 terminals on the Cumberland River (5 Municipally owned and open for public use; 5 government owned facilities and 32 privately owned facilities). A total of 18 terminals have railroad connections. Principal commodities handled are petroleum products, stone, sands, gravel, coal, coke, iron, steel, chemicals and grain. Facilities considered adequate for existing commerce. For further information see page 695 of Annual Report for 1969.

Operations during fiscal year. New work: None. Maintenance: Operations and Maintenance improvements included replacement of the spillway gate chains at Old Hickory Dam. Control stands and wall armor were replaced and hydraulic and electrical system equipment were purchased for Cheatham Lock. A replacement SCADA system was purchased for Cheatham Power Plant. Work continued on the inspection and repair of all lock dewatering structures. Major rehab studies were continued for Barkley Power Plant and initiated for Old Hickory Power Plant. Barkley Lock was dewatered for repairs. Three smaller mooring cells below Cheatham Lock were replaced with one thirty-foot mooring cell. Approximately 160,000 cubic yards of material was removed from one site by hired labor channel maintenance dredging on the Cumberland River. An estimated 23 million tons of commodities were locked through the Cumberland River Locks. Commercial lockages were approximately 5,340 and 5,328 recreational craft were also locked through. Total

sales energy generated at Barkley Dam (613,250,000 kw-hr) was made available through Southeastern Power Association to the Tennessee Valley Authority, Southern Illinois Power Cooperative, Big Rivers Rural Electric Cooperative Corporation, and Indiana Statewide Rural Electric Cooperative, Inc., Hosier Energy Division. Total sales energy generated at Cheatham Dam (160,618,000kw-hr), Cordell Hull (203,025,000 kw-hr), and Old Hickory (346,742,000 kw-hr) was made available for distribution. Activities under reservoir management pro-gram comprising malaria control, shoreline sanitation, land management and disposal, and maintenance of public-use facilities continued.

2. KENTUCKY LOCK ADDITION, KY

Location. Kentucky Lock and Dam is located in western Kentucky at Mile 22.4 of the Tennessee River between Livingston and Marshall Counties.

Existing Project. Kentucky L&D was completed in 1945 by the Tennessee Valley Authority. TVA continues to operate the dam and powerhouse while operation of the 110'x600' navigation lock is the responsibility of the Nashville District. Products from 20 states pass through the system of Kentucky and Barkley Locks, the lower-most locks on the Tennessee and Cumberland Rivers, respectively. Over 80% of the commercial tows hauling these products pass through KY Lock instead of Barkley Lock because of difficult and costly navigation on the Cumberland River below Barkley. Since most of the tows are greater than 600' in length, they must perform a time-consuming double lockage to transit through the existing 600' long KY Lock. This results in average delays between three to five hours per tow under existing traffic levels. Since the traffic levels are expected to grow in the near future, these delays will also increase. The last traffic forecast developed in 1995 estimated that 43 M tons of products would be transported through the Kentucky-Barkley system in the year 2000. Actual tonnage for the system in 1997 was 43.5 M tons and has leveled out over the few years since. It costs a tow about \$400/hour to wait in line at the lock. Construction of a new 1200' lock would eliminate the delay time in the near term and drastically shorten it for forecasted traffic levels past the year 2020.

Project Description. The 1992 Kentucky Lock Feasibility report recommended a new 110' X 1200' lock adjacent and landward of the existing 110' X 600' lock. The project was authorized for construction in WRDA 96. Average annual benefits attributed to a new lock are \$55.1M. Most of these benefits are associated with improving the performance of the lock by reducing traffic delays and disruptive lock outages for maintenance and major rehabilitation work. Based on an estimated construction cost of \$440M (Oct. '99), the new lock project has a Benefit/Cost ratio of 2.5. Other project features in addition to the new lock itself are three major relocation efforts: 1) four large TVA transmission towers, 2) about 2 miles of the Paducah and Louisville Railway, including a major river bridge, and 3) about 2 miles of U.S. Highway 62, also on a new major river bridge.

Operations during fiscal year. FY 2001 funding of \$24.2M was used to advance the design of the project, continue construction of the west bank approaches to the Tennessee River Bridges, and complete the relocation of the transmission towers. Other significant activities include: 1) completion of all testing of the General Model at the Waterways Experiment Station; 2) awarding a \$11.3M contract for the construction of the upstream cofferdam; 3) awarding a \$36.6M contract for the construction of the bridge piers for the two-lane highway bridge and single track railroad bridge across the Tennessee River immediately below Kentucky Dam; 4) completion of a Supplemental Environmental Impact Statement and signing of a Record of Decision; 5) continued design of the lock including the upstream approach walls, downstream cofferdam, east bank permanent embankment, site development, site utilities, upstream lock excavation, wall monoliths, materials testing, and electrical/mechanical features; and completion of design efforts on the wetland mitigation parcel, miter gates and culvert valves; 6) completion of the P&L Railroad and Highway relocation Design Memorandums, and substantial completion of the east bridge approaches design and initiation of final design of the bridges' superstructures; and 7) continued geotechnical land exploration for the RR and Highway relocations and lock.

3. TENNESSEE RIVER, TN, AL AND KY

Location. Formed by junction of French Broad and Holston Rivers in eastern Tennessee, 4.4 miles above Gay Street Bridge at Knoxville, flows southwest into northern Alabama, thence in a generally westerly course across north Alabama, to northeast boundary of Mississippi, thence nearly due north across Tennessee and Kentucky, entering Ohio River at Paducah, 652.1 miles from junction of French Broad and Holston Rivers. (See Geological survey base map of Tennessee River Basin.)

Previous projects. For details see pages 1902-1906, Annual Report for 1915; pages 1190-1194, 1196-1216, and 1220-1222, Annual Report for 1929; and page 1216, Annual Report for 1938.

Existing project. Originally provided for permanent improvement of river for a navigable depth of 9 feet at low water from mouth about 650 miles to Knoxville, TN. Only work performed by the Corps was construction of locks at General Joe Wheeler Dam and Wilson Dam. Tennessee Valley Authority program provided for obtaining authorized 9-foot project by construction of high dams and locks and utilization of certain locks and dams previously constructed under jurisdiction of the Corps. (See Table 23-B for Authorizing Legislation.) Subsequent construction by the TVA of Melton Hill Dam extends navigable channel of Tennessee River system up the Clinch River about 38 miles above damsite (mile 23.1) to vicinity of Clinton, TN. (See table 23-I on Tennessee River.) In accordance with general navigation laws placing control and supervision over

navigable waters under direction of Secretary of the Army, the Corps of Engineers operates and maintains all locks, and maintains navigation channels and safety harbors by performing all necessary maintenance dredging and snagging operations. For information concerning other functions of the Corps under division of responsibilities for Tennessee River since adoption of Tennessee Valley Authority Act of 1933, see page 1084 of Annual Report for 1962.

Local cooperation. Authorization requires no local cooperation in construction of alternate system of low dams. It does, however, provide that if high dams are built before the United States builds projected locks and low dams which are to be replaced, the United States shall contribute to cost of substituted structures an amount equal to estimated cost of works of navigation for which substitution is made.

Terminal facilities. There are 150 terminals on the Tennessee River (13 municipally owned, 15 government owned facilities and 122 privately owned facilities). A total of 79 terminals have railroad connections. Principal commodities handled are petroleum products, stone, sand, gravel, coal, coke, grain, chemicals, iron, and steel. Facilities considered adequate for existing commerce. A list of terminals is revised annually and can be obtained from Division Engineer, Ohio River Division, Corps of Engineers, Cincinnati, Ohio. For further information see page 698 of Annual Report for 1969.

Operations during fiscal year. Channel work by government plant and hired labor consisted of dredging and snagging at various locations, and maintenance of mooring facilities and safety harbors. Cost of channel maintenance was \$4,215. Maintenance: Major maintenance included dewatering and repairs to Kentucky and Melton Hill Locks. Lift gate chains and an intake screen were replaced at Wilson Lock. A culvert valve was replaced at Kentucky Lock. Replacement of lock gate anchor bars continued. Work continued on inspection and repair of all dewatering closures. An estimated 49 million tons of commodities were locked through the Tennessee River Locks. Commercial lockages were approximately 21,000 and 20,000 recreational craft were also locked through. The long-term program to maintain Chickamauga Lock was continued. Efforts to monitor the locks condition included installation and evaluation of additional instrumentation and a diving inspection. Maintenance to keep the lock operational included the installation of four gear reducers and a design to rework the grating on the lock. A section of the as-builts drawings were also updated to keep track of the changes made on the lock.

4. TENNESSEE-TOMBIGBEE WATERWAY, AL AND MS

Location. West Central Alabama and Northeastern Mississippi; in Marengo, Sumter, Greene and Pickens Counties, Alabama, and Noxubee, Lowndes, Clay, Monroe, Itawamba, Prentiss and Tishomingo Counties, Mississippi.

Existing project. Provides for a waterway 234 miles in length, connecting the Tombigbee and Tennessee Rivers by

way of the East Fork of Tombigbee River, Mackeys and Yellow Creeks, affording a channel not less than 9 feet deep and 280 feet in bottom width, with 10 locks each having clear chamber dimensions of 110 x 600 feet. Construction for the divide section, including Bay Springs lock and dam, is assigned to the Nashville District; where-as, the prosecution of work on the river and canal sections is under the jurisdiction of the Mobile District. Only activities of the Nashville District are reported herein.

Local cooperation. Authorization requires local interests to construct, maintain and operate all highway bridges, construct and maintain all highway relocations or alterations, make and maintain alterations as required to sewer, water supply and drainage facilities, assume cost of operation and maintenance of utility crossings, provide and maintain as required suitable and adequate river and canal terminals in accordance with plans approved by the Secretary of the Army and the Chief of Engineers.

Operations during fiscal year. The Mobile District is responsible for operation and maintenance of the entire Tennessee-Tombigbee Waterway. The project is 100% complete.

5. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Sec. 107, Public Law 86-645, as amended (preauthorization).

During the period a total of \$77,191 were expended for Section 107 projects, \$14,642 for Barton Riverfront Park, Muscle Shoals, AL, \$52,853 for Clarksville Riverport, TN and \$9,696 in the coordination account.

Alteration of Bridges

6. AUTHORIZED ALTERATION OF BRIDGES

Work on Woodland Street bridge, under Truman-Hobbs Act, was initiated in 1965 and completed in 1966. Costs were \$987,632. For details see page 922 of Annual Report for 1967.

Flood Control

7. BIG SOUTH FORK NATIONAL RIVER AND RECREATIONAL AREA, KY AND TN

Location. The project is located in Northeastern Tennessee and Southeastern Kentucky along the Big South Fork River and its tributaries in Pickett, Scott, Fentress, and Morgan Counties, Tennessee, and McCreary County, Kentucky.

Existing project. A National River and Recreation Area was established in accordance with the concept included in the interagency report prepared pursuant to section 208 of Flood Control Act of 1968. Total acreage was not to exceed 125,000 acres. The act specifically established the National Area for the purpose of preserving and interpreting the scenic,

biological, archeological and historical resources of the river gorge area and developing the natural recreational potential of the area. The project was authorized by the Water Resource Development Acts of 1974, 1976, and 1986. (See table 23B for authorizing legislation). The authorized cost (ceiling) for the project was \$156,122,000. \$112,588,920 was appropriated to the Corps of Engineers for design and construction of park facilities. The first construction contract was awarded in June 1981. By Memorandum of Agreement dated 1 October 1990 jurisdiction of the area was transferred to The Department of Interior.

Local cooperation. None required.

Operation during fiscal year. The Memorandum of Agreement between the Department of Army and the Department of Interior, transferring jurisdiction of the Big South Fork National River and Recreation Area, itemized activities to be completed by the Army. In accordance with this agreement, miscellaneous minor construction items were completed.

8. BLACK FOX, MURFREE, AND OAKLAND SPRINGS, TN

Location. Black Fox, Murfree, and Oaklands Springs, wetlands lie in Murfreesboro, Tennessee.

Existing project. Project features include trails, boardwalks, observation platforms, parking, removing exotic invasive vegetation, and planting native species. At Oaklands the planting of all tree species native to Tennessee and heritage gardens will enhance the existing antebellum mansion. Ecosystem restoration features include the creation of additional wetlands and in-stream structures. Existing buildings at Murfree Springs were demolished to provide space for an environmental education center which was contributed by others and additional wetland habitat. A master plan for each site was completed in FY95. FY96 appropriations of \$148,000 were used to initiate PED. FY97 funds were used to begin a decision document for the entire project and site plans for Oaklands and Black Fox. FY98 funds totaled \$2.7 million. A portion was used to substantially complete the draft decision document and continue plans and specifications for the environmental education center (which the government is designing, but not constructing). FY99 work included responding to higher-level review comments, revision of the decision document and refinement of the project design. FY 00 funds were used to complete construction documents.

Local cooperation. The project authorization by WRDA 1996 and the City of Murfreesboro, TN is the local sponsor. Cost sharing is 75% Federal and 25% non-Federal. Real estate costs over 25% will be borne by the Federal Government.

Operations during fiscal year. FY 2001 funds were used to demolish existing buildings and initiate ecosystem restoration.

9. HAMILTON COUNTY STREAMBANK STABILIZATION, TN

Location. The project is on the Tennessee River, in central Chattanooga, TN from approximate river mile 464 to 468. The bank stabilization consists of stone protection at 5 sites along this reach of the river.

Existing project: High floodwaters have caused slope failures and erosion along both previously protected and unprotected areas of the riverbank. Endangered facilities include a large interceptor sewer line (which serves a major portion of North Chattanooga), riverwalk trails, observation decks, fishing piers, drain pipes, ramps, power poles, roads, bridge abutments and parks/recreation facilities. Streambank protection is stone armament using graded limestone (referred to as "riprap").

Local cooperation: WRDA of 1996 authorized \$7.5 M (Federal) for Streambank Stabilization. Hamilton County is the project's sponsor; the City of Chattanooga is also sponsoring the project through a separate agreement with Hamilton County. Chattanooga and Hamilton County provided funding to initiate a feasibility study in FY 97 (\$150K) under our Work for Others Program. This information was utilized in the development of the decision document called a Detailed Project Report (DPR). The Corps received \$1.4M in FY 98 and \$1.4M in FY 99 to prepare a Detailed Project Report (DPR) and Environmental Assessment (EA), execute a Project Cooperation Agreement (PCA), and initiate construction. The Final DPR was approved in Feb 99. It described each site (cost, real estate requirements, and environmental and cultural impacts), included the benefit-cost ratios, and made recommendations of funding priority. The recommended plan includes five cost-effective sites. The district continued into design on Site 1 (Coolidge Park) and Site 2 (Heritage Landing) under a separate Design Agreement (local funding provided - \$87K) prior to executing a Project Cooperation Agreement (PCA) for construction in May 99. Congress appropriated \$1.5M in FY 00 for construction of Sites 3 and 4 and \$1.5M in FY 01 for construction of Site 5.

Operations during fiscal year: Funds received during FY 01 were used to complete construction on the lower two-thirds of Site 5 - Rivermont Park to Crutchfield Bar. The City of Chattanooga acquired easements from landowners for this 6,600-foot segment of work. This segment protects a trunk sewer line serving a major portion of northern Chattanooga. Construction contract for approximately \$1.2M was awarded September 2001.

10. MARTINS FORK LAKE, KY

Location. Dam located at mile 15.6 on Martins Fork of Clover Fork, Cumberland River, about 10 miles southeast of city of Harlan, with reservoir extending about 6 miles upstream within Harlan County, southeastern Kentucky.

Existing project. Multiple-purpose improvement Combining flood control with water quality control and recreation development adopted by 1965 Flood Control Act

(H.Doc. 244, 89th Cong.), in general accordance with recommendations. Dam is concrete type, 504 feet long and rising 97 feet above streambed. Outlet works provide for release of water from reservoir at varying levels. Drainage area above damsite is 55.7 square miles. At full pool level, spillway crest at elevation 1341 above mean sea level, reservoir will cover 578 acres and contain 21,120 acre-feet of storage capacity. Provision is made for 17,450 acre-feet of reservoir capacity between elevations 1341 and 1300 for control of floods in winter and spring season, and 14,360 acre-feet (El. 1341-1310) during summer and fall, in conjunction with which storage of 3,090 acre-feet would be available on a seasonal basis to meet streamflow requirements for water quality control and fish life below the dam. A minimum permanent pool of 3,670 acre-feet, 274 acres in extent, is available during the potential flood seasons; and during late spring and summer when flood storage can be reduced, the lake is operated generally at a higher level (El. 1310) to maintain a larger surface area of 340 acres for recreation and provide the required seasonal storage for releases of water during critical low-flow periods. Project prevents a major portion of average annual flood losses at Harlan and results in significant stage reductions with related benefits along rural reaches and to other urban areas downstream. Actual cost of project including \$95,000 code 710 funds is \$20,479,911. First construction contract awarded in December 1972. Project completed for beneficial use in September 1978.

Local cooperation. Federal Water Project Recreation Act of 1965 (P.L. 89-72) applies in regard to non-Federal participation in recreation development, in addition to which local interests are to provide certain safeguards to ensure functioning of reservoir as intended. In May 1981 a final recreation cost-sharing contract with Harlan County was approved and certain recreation facilities have been jointly developed by the Corps and the County. These facilities, consisting of a swimming beach and a picnic area are now operated and maintained by Harlan County. Recreation investment to date (Corps and Local) is about \$100,000.

Operations during fiscal year. New work: None. Maintenance: Only routine maintenance.

11. MIDDLESBORO, CUMBERLAND RIVER BASIN, KY

Location. At Middlesboro, Ky., on Yellow Creek, a tributary entering Cumberland River about 660 miles above its mouth.

Existing project. A system of canals and levees around one side of town, arranged so as to divert most headwaters of Yellow Creek away from present channel through heart of city. Protection is thus afforded in large measure to life and property within business district and a large part of residential section. For project details, see page 1088 of Annual Report for 1962.

Local cooperation. None required.

Operations during fiscal year. New work: None.

Maintenance: Only routine maintenance.

12. TUG AND LEVISA FORKS OF THE BIG SANDY RIVER AND UPPER CUMBERLAND, WV, VA AND KY

Location. The project is located in the State of West Virginia and the Commonwealths of Kentucky and Virginia. The Cumberland portion consists of the Upper Cumberland River Basin, above Cumberland Falls, KY. The basin is approximately 100 miles in length, averaging 30 miles in width at the lower portion and 10 miles in width upstream at Harlan KY. The Big Sandy Basin is within the Huntington District and the Cumberland within the Nashville District.

Existing project. Provides for flood control measures for communities in the Tug and Levisa Forks and Upper Cumberland River Basins. The Cumberland portion has been assigned to the Nashville District. Only activities of the Nashville District are reported herein. Estimated Federal cost of new work under jurisdiction of the Nashville District is \$413,020,000. The project was authorized by the Energy and Water Development Appropriation Act of 1981, Section 202 of PL 96-367.

Local cooperation. Flood protection cost for Williamsburg, Middlesborough and Clover Fork, KY are shared with their sponsors in accordance with provisions defined by WRDA, 1986. The sponsor has responsibility to operate and maintain such works upon completion of construction.

Operations during fiscal year. Major contracts for flood protection at Harlan project were completed this year. Channelization to reduce flooding at Middlesborough continued and is near completion. Nonstructural evacuations and floodproofings continued at Harlan and Middlesborough and the communities along the Clover Fork of the Cumberland River.

13. OHIO RIVER BASIN (NASHVILLE DISTRICT)

Location. A series of levees, floodwalls, channel improvements, and reservoirs in Ohio River Basin within Nashville District.

Existing project. The general comprehensive plans approved for flood control and other purposes in Ohio River Basin is set forth in legislation listed in Table 23-B. Individual projects, local protection projects and lakes, considered in comprehensive plan within Nashville District are listed in Table 23-K.

14. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts, requires local interests furnish assurances they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by Secretary of the

Army. District Engineers are responsible for administration of these regulations within their respective districts. Maintenance inspections were made during fiscal year of completed protective works in localities transferred to local interests for maintenance and operation. Local interests were advised, as necessary, of measures required to maintain projects in accordance with standards prescribed by regulations. Fiscal year cost was \$24,052. Total cost to September 30, 2001 was \$556,610. For project inspection data see table 23-M.

15. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control and coastal emergencies (Public Law 99, 84th Cong., and antecedent legislation). Actual Federal cost for the fiscal year was \$255,458 for disaster preparedness.

Multiple-Purpose Projects, Including Power

16. CENTER HILL LAKE, OHIO RIVER BASIN, TN

Location. Dam is on Caney Fork River, 26.6 miles above its confluence with Cumberland River (mile 309.2) at Carthage, TN. It is in DeKalb County, TN., about 55 miles east of Nashville, and 14 miles southeast of Carthage, TN. Reservoir extends about 64 miles up main stream and about 10 miles up Falling Water River and lies within DeKalb, Putnam, White, and Warren Counties, TN.

Existing project. A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production, with a permanent pool for public use and conservation purposes. In addition to main dam structure, provision was made for a rolled-earth dike to close a saddle in reservoir rim near damsite. For further details, see page 1099 of 1962 Annual Report. Actual cost of project including \$8,940,642 code 710 funds is \$53,412,022.

Local cooperation. None required on completed project. Recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None. Maintenance: Dam was operated and structure and its appurtenance maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (278,598,000 kw-hr) was made available through the Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management involved land management, public relations, and maintenance of public use facilities. Operations and Maintenance work included continued investigation of leakage through the rim of the dam. A major rehab study of the power plant was continued. The drain holes in the dam were cleaned. A replacement SCADA system was purchased for the power plant

Dam Safety: No funds were expended during FY01.

17. DALE HOLLOW LAKE, OHIO RIVER BASIN, TN AND KY

Location. Dam is on Obey River, 7.3 miles above its confluence with Cumberland River (mile 380.9) at Celina, TN. It is in Clay County, TN, and about 80 miles northeast of Nashville, TN 28 miles north of Cookeville, TN, and 3 miles east of Celina, TN. Reservoir extends about 51 miles up main stream, 10 miles up East Fork, and 6 miles up West Fork of Obey River, and lies within Cumberland and Clinton Counties, KY, and Clay, Pickett, Overton, and Fentress Counties, TN.

Existing project. A concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production with a permanent pool for public use and conservation purposes. See page 1096 of 1962 Annual Report for project details. Cost of project including \$2,195,600 code 710 funds and \$150,000 non-Federal funds recreation facilities under the completed projects program is \$28,317,746.

Local cooperation. None required on completed project; future recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None. Maintenance: Dam was operated and structures and appurtenances maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (57,462,000 kw-hr) was made available through the Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved public relations, and management and maintenance of public-use facilities. The drain holes in the dam were cleaned. Pine trees killed by pine beetles were removed in recreation areas.

18. J. PERCY PRIEST DAM AND RESERVOIR, OHIO, RIVER BASIN, TN

Location. Damsite is on Stones River, 6.8 miles above its confluence with Cumberland River (mile 205.9); in Davidson County, TN.; and about 7 miles east of Nashville, TN. Reservoir extends southeasterly from dam about 32 miles along main stream, 10 miles up East Fork, 6.5 miles up West Fork, and for shorter distances up other tributaries of Stones River; and lies within Davidson, Rutherford, and Wilson Counties, TN.

Existing project. A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control, power production and recreation. For further details see page 703 of 1969 Annual Report. Cost of project including \$3,260,400 under code 710

funds and \$46,000 non-Federal funds for recreation facilities under the completed projects program is \$56,914,039.

Local cooperation. Recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and appurtenances maintained as required. Total sales energy generated (54,034,000 kw-hr) was made available through Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved public relations, fish and wildlife management, and maintenance of public-use facilities. Modernization of campsites, entrance road, and roof replacements were completed at Poole Knobs Recreation Area. A replacement SCADA system was purchased for the power plant.

19. LAUREL RIVER LAKE, OHIO RIVER BASIN, KY

Location. Damsite is at mile 2.3 on Laurel River, a tributary of Cumberland River, in south-central Kentucky. The two streams meet about 9 miles below Cumberland Falls, a prominent physiographic feature at head of Lake Cumberland which is formed by Wolf Creek Dam. Reservoir extends 19.2 miles upstream to site of Corbin, KY water-supply dam and lies within Laurel and Whitley Counties.

Existing project. Project approved in general accordance with recommendations of House Document 413, 86th Congress, by 1960 Flood Control Act, as amended by Public Law 88-253, was designed for purposes of flood control, power, and recreation as an integral unit of a coordinated plan for development of water resources of Cumberland River Basin. With the view of net gain in power potential on a system basis, the plan of improvement incorporated appropriate flood control storage in the proposed project and corresponding adjustment in operations of Wolf Creek Dam - Lake Cumberland for flood control and power, which in effect constituted a transfer of reservoir capacity without entailing a change in flood control benefits. Further detailed study giving full consideration to power capabilities and marketing arrangements indicated the advantage of maintaining present storage allocation at Wolf Creek and use of all available storage capacity of Laurel River Lake for power. The power plant is complete. Recreation was completed in FY 1986. Total cost is \$56,741,232.

Local cooperation. None required.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and Appurtenances maintained as required. Total sales energy generated (36,616,000 kw-hr) was made available through Southeastern Power Association for distribution.

20. WOLF CREEK DAM - LAKE CUMBERLAND, OHIO RIVER BASIN, KY

Location. Wolf Creek Dam is on Cumberland River at mile 460.0 (above mouth) in Russell County, KY, about 10 miles southwest of Jamestown and 12 miles north of Albany, KY. Lake Cumberland extends 101 miles up main stream, 48 miles up South Fork of Cumberland River, in Russell, Clinton, Wayne, Pulaski, McCreary, Laurel, and Whitley Counties, KY.

Existing project. A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production, with a permanent pool for public-use and conservation purposes. See page 1094 of 1962 Annual Report for project details. Cost of project is \$188,267,195. This cost includes \$3,259,372 code 710 funds, \$880,000 non-Federal funds for recreation facilities under the completed pro-gram, and \$104,999,237 for major rehabilitation. WRDA 96 authorized an Uprate Project of the hydroelectric power-plant. Activity involving the integrity of the structure began in 1968 when a leak or seepage developed in the embankment. The major rehab embankment contract was physically completed in September 1982.

Local cooperation. None required on completed project; future recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and appurtenances maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (476,566,000 kw-hr) was made available through Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved land management activities, public relations, and maintenance of public-use facilities. Operations and Maintenance work included investigation of seepage through the dam. Leakage at the dam and power plant cable tunnel were repaired. A major rehab study of the power plant continues.

General Investigations

21. SURVEYS

Costs for this period were \$1,319,350 for which \$543,729 was for Navigation Studies, \$4,623 for Flood Damage Prevention Studies, \$596,778 for Special Studies, \$91,950 for Miscellaneous Activities and \$82,270 for Coordination With Other Agencies and Non-Federal Interests.

**22. COLLECTION AND STUDY OF
BASIC DATA**

Costs for this period were \$79,259, for which \$62,308 was for Floodplain Management Services and \$16,951 for General Hydrologic studies.

**23. PRECONSTRUCTION
ENGINEERING AND DESIGN**

Costs for this period were (\$1,391) for Flood Control Projects (Island Creek at Logan, WV).

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES, FY 2001

TABLE 23-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY98	FY99	FY00	FY01	Total to Sept 30, 2001
1. Cumberland River TN and KY	New Work						
	Approp.						320,252,240 ^{1, 2, 3}
	Cost	-	-	-	-	-	320,252,240 ^{1, 2, 3}
	Maint.						
	Approp.	21,372,000	21,603,000	24,297,555	26,539,201		516,640,682 ⁴
	Cost	21,241,148	22,307,391	24,277,115	26,044,500		516,052,764 ⁵
2. Kentucky Lock TN and KY	New Work						
	Approp.	3,957,000	12,483,000	19,250,000	24,142,000		69,058,000
	Cost	3,856,189	12,017,077	18,725,705	24,395,456		68,203,743
3. Tennessee River, TN, AL, and KY	New Work						
	Approp.	-	-	-	-		16,251,428 ⁶
	Cost	-	-	-	-		16,251,428 ⁶
	Maint.						
	Approp.	13,023,000	16,693,000	16,592,069	14,254,767		324,936,884 ⁷
	Cost	13,187,838	16,622,146	16,888,421	13,918,383		324,504,683 ⁸
	Rehab.						
	Approp.	-	-	-	-		400,000
	Cost	-	-	-	-		400,000
4. Tenn.-Tombigbee Waterway, AL and MS	New Work						
	Approp.	0	0	0	0		749,013,050
	Cost	0	0	0	0		749,013,050
7. Big South Fork National River and Rec. Area, KY and TN	New Work						
	Approp.	0	0	0	0		112,588,920 ⁹
	Cost	-41,469	20,186	47,169	791		112,573,658 ¹⁰
8. Black Fox/Oaklands Springs, TN	New Work						
	Approp.	1,426,000	465,000	1,677,000	1,676,000		5,679,000
	Cost	716,410	365,228	538,451	1,248,025		3,189,798
9. Hamilton County, TN	New Work						
	Approp.	909,000	1,679,481	1,503,250	1,257,076		5,348,807 ¹¹
	Cost	110,274	562,470	2,803,955	398,909		3,875,607 ¹²
10. Martins Fork Lake, KY	New Work						
	Approp.	-	-	-	-		20,479,911
	Cost	-	-	-	-		20,479,911
	Maint.						
	Approp.	562,000	652,000	773,500	654,465		12,888,305
	Cost	767,093	581,314	680,231	650,909		12,883,972
11. Middlesboro, Cumberland River Basin, KY	New Work						
	Approp.	-	-	-	-		817,830 ¹³
	Cost	-	-	-	-		817,830 ¹³
	Maint.						
	Approp.	48,000	50,000	61,500	71,785		2,538,451
	Cost	35,430	62,696	60,362	72,822		2,538,350
12. Tug & Levisa Forks of the Big Sandy & Cumber- land River, WV, VA and KY	New Work						
	Approp.	27,986,000	18,491,299	10,736,710	12,011,300		357,483,835 ¹⁴
	Cost	20,452,349	26,398,835	16,035,961	11,490,106		353,988,146 ¹⁵
16. Center Hill Lake, Ohio River Basin, TN	New Work						
	Approp.	-	-	-	-		53,412,022 ¹⁶
	Cost	-	-	-	-		53,412,022 ¹⁷
	Maint.						
	Approp.	4,163,000	5,309,000	4,974,200	5,629,947		109,855,023 ¹⁸
	Cost	4,005,131	5,532,725	4,918,695	5,678,972		109,808,165 ¹⁹

NASHVILLE, TN, DISTRICT

TABLE 23-A (continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY98	FY99	FY00	FY01	Total to Sept 30, 2001
17. Dale Hollow Lake		New Work					
Ohio River Basin,		Approp.	-	-	-	-	28,317,746 ²⁰
TN and KY		Cost	-	-	-	-	28,317,746 ²¹
		Maint.					
		Approp.	3,669,000	4,117,000	4,436,000	4,111,988	95,706,015 ²²
		Cost	3,734,697	4,154,911	4,436,057	4,117,903	95,705,893 ²³
18. J. Percy Priest Dam and		New Work					
Reservoir, Ohio River		Approp.	-	-	-	-	56,914,039 ²⁴
Basin, TN		Cost	-	-	-	-	56,914,039 ²⁵
		Maint.					
		Approp.	3,300,000	3,650,000	3,403,000	4,127,951	75,528,602 ²⁶
		Cost	3,771,642	3,674,280	3,415,921	4,127,844	75,528,491 ²⁷
19. Laurel River Lake,		New Work					
Ohio River Basin, KY		Approp.	-	-	-	-	56,741,232
		Cost	-	-	-	-	56,741,232
		Maint.					
		Approp.	1,166,000	1,251,000	1,793,000	1,262,082	25,081,025 ²⁸
		Cost	1,167,224	1,279,616	1,788,169	1,283,774	25,077,544 ²⁹
20. Wolf Creek Dam and		New Work					
Lake Cumberland,		Approp.	-	-	-	-	83,267,958 ³⁰
Ohio River Basin, KY		Cost	-	-	-	-	83,267,958 ³⁰
		Maint.					
		Approp.	8,974,346	6,652,104	5,861,287	6,478,330	139,177,800 ³⁰
		Cost	7,831,643	7,917,894	5,903,414	6,491,179	138,936,772 ³¹
		Rehab.					
		Approp	-	-	-	-	104,999,237 ³²
		Cost	-	-	-	-	104,999,237 ³²

1. Includes \$9,707,354 for abandoned and/or replaced works under the old Cumberland River system. (Amount includes \$826,253 for new work and \$3,266,706 for maintenance on previous project.)

2. Includes \$61,733 public works acceleration funds, and \$102,966 contributed by the State of Kentucky and \$6,750 contributed by metropolitan Nashville, TN.

3. Includes \$298,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

4. Includes \$955,889 for special recreation use fees, and \$2,628,257 for maintenance and operation of dams and other improvements of navigable waters, and \$1,892,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

5. Includes \$955,889 for special recreation use fees, and \$2,628,257 for maintenance and operation of dams and other improvements of navigable waters, and \$1,892,000 funds provided

6. Includes \$14,007,193 for new work and excludes \$4,005,175 for maintenance on previous projects.

7. Includes \$495,763 for maintenance and operation of dams and other improvements of navigable waters, and \$764,000 funds

provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

8. Includes \$495,763 for maintenance and operation of dams and other improvements of navigable waters, and \$764,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

9. Includes \$300,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

10. Includes \$300,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

11. Includes \$884,731 contributed by Hamilton County, TN

12. Includes \$649,839 contributed by Hamilton County, TN

13. Includes \$33,876 Emergency Relief Funds.

14. Includes \$21,918,326 contributed by the State of Kentucky.

15. Includes \$21,086,846 contributed by the State of Kentucky.

16. Includes \$35,896 public works acceleration funds, and

TABLE 23-A
(continued)

COST AND FINANCIAL STATEMENT

\$148,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

17. Includes \$35,896 public works acceleration funds, and \$148,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

18. Includes \$292,280 funds for special recreation use fees, and \$1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and \$91,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

19. Includes \$292,280 funds for special recreation use fees, and \$1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and \$91,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

20. Includes \$51,789 public works funds and \$150,000 contributed by the State of Tennessee, and \$341,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

21. Includes \$51,789 public works funds and \$150,000 contributed by the State of Tennessee, and \$341,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

22. Includes \$339,480 funds for special recreation use fees, and \$1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and \$482,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

23. Includes \$1,083,678 funds for special recreation use fees, and \$884,178 for maintenance and operation of dams and other improvements of navigable waters, and \$482,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

24. Includes \$46,000 contributed by the Metropolitan Government, Nashville, TN.

25. Includes \$46,000 contributed by the Metropolitan Government, Nashville, TN.

26. Includes \$260,680 for special recreation use fees, and \$1,226,978 for maintenance and operations of dams and other improvements of navigable waters, and \$40,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

27. Includes \$260,680 for special recreation use fees, and \$1,226,978 for maintenance and operations of dams and other improvements of navigable waters, and \$40,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

28. Includes \$66,678 for maintenance and operations of dams and other improvements of navigable waters.

29. Includes \$96,920 public works acceleration funds, and \$880,000 contributed by the State of Kentucky.

30. Includes \$82,048 public works acceleration funds, and \$198,578 for maintenance and operation of dams and other improvements of navigable waters, and \$278,780 funds for special recreation use fees, and \$293,000 fund provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

31. Includes \$82,048 public works acceleration funds, and

\$198,578 for maintenance and operation of dams and other improvements of navigable waters, and \$278,780 funds for special recreation use fees, and \$293,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

32. Includes \$203,757 for claim paid on initial construction of switchyard.

NASHVILLE, TN, DISTRICT

TABLE 23-B

AUTHORIZED LEGISLATION

See Section In Text	Date of Authorized Act	Project and Work Authorized	Documents
1.	Jul 13, 1892	CUMBERLAND RIVER BELOW NASHVILLE Provision made for lock A	Annual Report, 1890, p. 2151
	Jun 25, 1910	Provision made for locks B to F, and for dredging below lock F.	H. Docs. 758, 60th Cong., 1st sess.; and 1481, 60th Cong., 2d sess. 1
	Aug 30, 1935	Repairing dams A to F, inclusive, and surmounting same with movable crests	H. Doc. 38, 73d Cong., 1st sess.
	Jul 24, 1946	Provision of 9-foot channel by the construction of 3 moderate height dams below Nashville, via,	H. Doc. 761, 79th Cong., 2d sess.
	Jun 19, 1952	Kuttawa (Eureka), Dover, and Cheatham. Provision for hydroelectric power production as a function of Cheatham Dam.	
	Sep. 3, 1954	Construction of Barkley (Lower Cumberland) dam and reservoir project for navigation, flood control, hydroelectric power, and related purposes in lieu of Kuttawa and Dover navigation-only structures.	S. Doc 81, 83d Cong., 2d sess.
	Jul 14, 1960	Authorized change in alignment of Illinois Central	H. Doc. 56, 86th Cong., Railroad. 2d sess.
	Oct 12, 1996	Authorized construction of Kentucky Lock WRDA 96 for navigation only.	
1.	Aug. 5, 1886	CUMBERLAND RIVER ABOVE NASHVILLE Provision made for locks and dams; the Secretary of War to determine the final plan of improvement. Dimensions of the locks fixed in accordance with reports of Mar. 30, 1887, and Nov. 25, 1890.	Annual Report 1884, p. 1663 Annual Report 1888, p. 1622, and Annual Report 1892, p. 1933.
	Mar 2, 1907	Adoption of the report of the Board of Engineers, dated Feb. 26, 1906, limiting the lock and dam construction to locks and dams 1 to 7, and 21.	H. Doc. 699, 59th Cong., 1st sess.
	Mar 2, 1919	Provision made for locks and dams 8 to 17.	Rivers and Harbors Committee Doc. 10, 63d Cong., 2d sess.
	Jun 5, 1920	Authorizes work to proceed in Tennessee without waiting for action of local interests in Kentucky.	
	Jul 3, 1930	Raising dam 1, 3 feet.	Rivers and Harbors Committee Doc. 26, 70th Cong., 2d sess.
	Jun 26, 1934 ²	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors.	
	Jul 24, 1946	Construction of Old Hickory, Cordell Hull (Carthage), and Celina Dams above Nashville for navigation and the development of power resources.	H. Doc. 761, 79th Cong., 2d sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES, FY 2001

TABLE 23-B
(continued)

AUTHORIZED LELGISLATION

See Section In Text	Date of Authorized Act	Project and Work Authorized	Documents
	Oct 1, 1980	Design and construct flood control measures for communities in the Upper Cumberland River basins.	Sec. 202, PL 96-367
	Oct 17, 1996	Authorized ecosystem restoration at three wetlands and historic sites in Murfreesboro, TN.	WRDA 96
	Oct 12, 1996	Authorized hydropower update at Wolf Creek Dam	WRDA 96
3.		TENNESSEE RIVER	
	Jul 3, 1930	Authorized navigable depth of 9 feet from mouth about 650 miles to Knoxville, Tennessee to be obtained by construction of low dams.	H. Doc. 328, 71st Cong., 2d sess.
	May 18, 1933	Authorized TVA to construct such dams in the Tennessee River as will provide a 9 foot channel.	
	Oct 12, 1996	Authorized flood damage reduction by nonstructural methods in Hamilton County, TN.	WRDA 96
	Oct 12, 1996	Authorized a study for a bank stabilization project on the Tennessee River in Hamilton County, TN.	WRDA 96
	Oct 12, 1996	Authorized assistance to non-Federal interests for environmental activities in Jackson County, AL.	WRDA 96
16.		OHIO RIVER BASIN, NASHVILLE DISTRICT	
	Aug 28, 1937	Construct levees, floodwalls, and drainage structures for protection of cities and towns in Ohio River Basin. Project to be selected by Chief of Engineers with approval of Secretary of War at a cost not to exceed \$24,877,000 for construction.	Flood Control Committee Doc. 1, 5th Cong., 1st sess.
	Jun 28, 1938	Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable at discretion of Secretary of War and Chief of Engineers and for initiation and partial accomplishment of plan, authorized \$75million for reservoirs and \$50,300,000 for local flood protection works.	Flood Control Committee Doc. 761, 75th Cong., 3d sess.
	Aug 18, 1941	Additional \$45 million for prosecution of comprehensive plan for Ohio River Basin.	
	Dec 22, 1944	Additional \$70 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 762, 77th Cong., 2d sess.
	Jul 24, 1946	Additional \$125 million for further prosecution of comprehensive plan.	H. Doc. 506, 78th Cong., 1st sess.
	May 17, 1950	Additional \$100 million for prosecution of comprehensive plan for Ohio River Basin.	

NASHVILLE, TN, DISTRICT

TABLE 23-B
(continued)

AUTHORIZED LEGISLATION

See Section In Text	Date of Authorized Act	Project and Work Authorized	Documents
	Dec 30, 1963	Additional \$150 million for further prosecution of comprehensive plan for flood control and other purpose in Ohio River Basin.	
	Jun 18, 1965	Additional \$89 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 6755, 89th Cong., 1st sess.
	Aug 13, 1968	Additional \$35 million for further prosecution of comprehensive plan for Ohio River Basin.	S. 3710, 90th Cong., 2d sess.
	Jun 19, 1970	Additional \$69 million for further prosecution of comprehensive plan for Ohio River Basin.	H. R. 15166 91st Cong., 2d sess.
	Mar 7, 1974	Authorized Big South Fork National River and Recreation Area, KY and TN. Total area not to exceed 125,000 acres.	H. R. 10203 93rd Cong. Water Resources Develop. Act of 1974 Amended by PL 94-587, 94th Cong.
	Mar 7, 1974	Additional \$120 million for further prosecution of comprehensive plan for Ohio River Basin.	H. R. 10203 93rd Cong. River Basin Monetary Authorization Act of 1974.
4.		TENNESSEE-TOMBIGBEE WATERWAY	
	Jul 24, 1946	Construction of waterway to connect above rivers and provide a 9 foot channel and minimum bottom width of 170 feet in river and canal sections and 150 feet in the divide cut, with locks 110 by 600 feet clear inside dimensions.	H. Doc. 486, 79th Cong. 2d sess.
		Subsequent studies determined most practical plan consists of channel with bottom width of 300 feet (280 feet in divide cut), fewer locks with higher lifts resulted in reducing number of lifts from 18 to 10 and reduced length from 260 to 253 miles.	Page 1343, Part I, FY 1968 House Hearings

1. Contains latest published maps. Included in Public Works Administration Program Sept. 6, 1993.
2. Permanent Appropriation Repeal Act.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES, FY 2001

TABLE 23-C OTHER AUTHORIZED NAVIGATION PROJECTS
(All Projects not Specifically Identified in Text)

Project	Status	For last Full Report see Annual Report	<u>Cost to Sept, 2001</u>	
			Operation & Construction	Maintenance
Caney Fork River, TN	abandoned	1895	\$ 27,828	-
Clinch River, TN and VA	abandoned	1923	53,949	7,873
Duck River, TN	abandoned	1887	13,000	-
Elk River, AL and TN	abandoned	1904	4,000	-
French Broad and Little Pigeon Rivers, TN	abandoned	1931	249,605	33,554
Holston River, TN	abandoned	1911	5,714	-
Little Tennessee River, TN	abandoned	1888	5,510	-
Obey River, TN	abandoned	1887	11,500	-
Red River, TN	abandoned	1884	5,000	-
South Fork of Cumberland River, KY	abandoned	1892	11,967	-

NASHVILLE, TN, DISTRICT

TABLE 23-E **OTHER AUTHORIZED FLOOD CONTROL PROJECTS**
(All Projects not Specifically Identified in Text)

Project	Status	For last Full Report see Annual Report	<u>Cost to Sept, 2001</u>	
			Operation and Construction	Maintenance
Barbourville, KY	completed	1963	\$2,088,147	-
Coal Creek and Tributaries (Lake City), TN	completed	1962	460,134	-
Corbin (Lynn Camp Creek), KY	completed	1969	567,703	-
Middlesboro (Yellow Creek), KY	completed	1949	26,309	-
Paint Rock River, AL	completed	1967	544,173	-
Pineville, KY	completed	1963	1,679,126	-

1. Includes 9,950 contributed in funds.

TABLE 23-F **OTHER AUTHORIZED MULTIPLE-PURPOSE PROJECTS**
(Including Power)

Project	Status	For last Full Report see Annual Report	<u>Cost to Sept, 2001</u>	
			Construction	Operation and Maintenance
Barkley Dam and Lake Barkley, KY and TN	beneficial use	-	\$162,026,571 ¹	\$168,235,635 ²
Celina Dam, KY	inactive	-	222,575	-
Cheatham Lock and Dam, TN	beneficial use	-	31,682,762	121,497,387 ²
Cordell Hull Lock and Dam, TN	beneficial use	-	79,874,492	85,463,673 ²
Old Hickory Lock and Dam, TN	beneficial use	-	52,266,412	140,856,099 ²

1. Includes \$15,527,927 cost for Cross Creek.

2. Details given under "Cumberland River, TN and KY "
See Table 23-H

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES, FY 2001

TABLE 23-G DEAUTHORIZED PROJECTS

Project	Status	For last Full Report see Annual Report	<u>Cost to Sept, 2001</u>	
			Operation & Construction	Maintenance
Three Islands Reservoir, Ohio River Basin, TN	1970	Authorized: FC Act 1938, PL 761, 75 Cong., 3rd sess.; FC Act 1946, PL 525, 79th Cong., 2d sess. Deauthorized: 5 Aug 1977.	\$111,855	-
Middlesboro, Yellow Creek Bell County, KY	-	Authorized: FC Act, Dec 22, 1944, PL 534, 78th Congress. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	-	-
Cumberland River above Nashville, TN	-	Authorized: River & Harbor Act, Aug 5, 1886. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	-	-
Hiwassee River, Polk and Bradley Counties, TN	1923	Authorized: River & Harbor Act Aug 14, 1876. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	123,065	-
Rossvie Lake, Tennessee and Kentucky	-	Authorized: FC Act, Jan 28, 1938, PL 761 75th Congress. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	6,779	-
Celina Lake, Kentucky and Tennessee		Authorized: Rivers and harbors Act of 1946. PL 79-522. Deauthorized: July 9, 1995, Section 1001 (B) (2) of PL 99-662.		

NASHVILLE, TN, DISTRICT

TABLE 23-H CUMBERLAND RIVER, TN AND KY: PRINCIPAL FEATURES
(See Section 1 of Text)

Nearest town	Kuttawa, KY 11 miles.	Ashland City, TN, 9 miles	Old Hickory TN, 3 miles	Carthage, TN 5 miles
Miles above mouth of river	30.6	148.7	216.2	313.5
Lock dimensions (feet)l	110 by 800	110 by 800	84 by 400	84 by 400
Lift at normal pool levels (feet)	57	26	60	59
Depths on guard-sills at minimum pool levels (feet)	11, upper; 13, lower	14, upper; 17, lower	14, upper; 13, lower	14, upper; 13, lower
Character of foundation	Rock	Rock	Rock	Rock
Dam:				
Type	Concrete gravity and earthfill	Concrete gravity	Concrete gravity and earthfill	Concrete gravity and earthfill
Height	157	75	98	93
Length, exclusive of lock section (feet)	9,959	800	3,605 ²	1,138 ²
Spillway:				
Gross length (feet)	804	480	325	291
Net length opening (feet)	660	420	270	225
Crest gates:				
Type	Tainter	Tainter	Tainter	Tainter
Number	12	7	6	5
Size (feet)	55 by 60	60 by 27	45 by 41	45 by 41
Operating levels at dam (feet, mean sea level):				
Maximum regulated	375	-	450 ³	508 ³
Normal operation:				
Full pool	359	385	-	508
Minimum pool	354	382	-	501
Minimum pool in advance of floods	346	-	442	499
Reservoir area (acres)	93,430	7,450	27,450	13,920
Reservoir capacity (acre-feet):				
Flood control	1,213,000 ^{3,4}	-	125,000 ⁵	85,600 ^{5,6}
Power drawdown	259,000	19,800 ⁷	63,000	20,500
Dead storage	610,000	84,200	357,000	204,800
Total	2,082,00	104,000	545,000	310,900
Canal:				
Length (mile)	1.75	-	-	-
Bottom width (feet)	400	-	-	-
Depth a minimum pool Level (feet)	11	-	-	-
Power Development				
Number of units	4	3	4	3
Generator rating (kilowatts)	32,500	12,000	25,000	33,333
Total installation (kilowatts)	130,000	36,000	100,000	100,000
Percent of project completion				
Year opened to navigation	1964	1952	1952	1973
Cost ⁹	\$ 162,026,571 ¹⁰	\$31,682,762	\$52,266,412	\$79,874,492

TABLE 23-H CUMBERLAND RIVER, TN AND KY: PRINCIPAL FEATURES
(continued) (See Section 1 of Text)

- | | |
|--|---|
| 1. Clear width and length available for full width. | 7. Daily pondage allowance; run-of-river project. |
| 2. Exclusive of lock section. | 8. Completed for full beneficial use. |
| 3. Surcharge. | 9. Includes recreation facility costs. |
| 4. Normal operation (elv. 375-359) during nonflood season;
flood control allowance to be increased to 1,472,000 acre-feet (elev.
375-354) during season of major floodflows. | 10. Includes \$15,527,927 cost for cost creek. |
| 5. Surcharge storage. | |
| 6. During flood season (3lev. 508-501); minimum 51,800 acre-
feet (elev. 508-504) with normal operation during non-flood season. | |

NASHVILLE, TN, DISTRICT

TABLE 23-I

**TENNESSEE RIVER
(SEE SECTION 3 OF TEXT)**

Lift Dimensions

Project¹	Miles Above Mouth	Miles from Nearest Town	Width of Cham- ber (feet)	Length Avail- able for Full Width (feet)	<u>Lift</u>		<u>Minimum on Guard Sills</u>		Character of Foundation	Year Opened Navi- gation	Kind of Dam	Type of Construction	Cost of Each Lock and Dam
					Nor- mal (feet)	Maxi- mum (feet)	Lower (feet)	Upper (feet)					
Kentucky	22.4	0.5 above Gilbertsville, KY	110	600	56	73.3	12.7	11.0	Limestone	1942	Fixed	Concrete and earthfill	2
Pickwick Landing:													
Auxiliary lock	206.7	4.4 above Hamburg, TN	110	600	55	63.0	12.8	10.0	Limestone	1937	Fixed	Concrete and earthfill	3
Main lock	206.7	4.4 above Hamburg, TN	110	1000	55	63.0	12.8	10.0	Limestone	1984	Fixed	Concrete and earthfill	3
Wilson:													
Auxiliary lock	259.4	2.9 above Florence, AL	60	292 300	94	100.0	11.0 ⁴	11.2	Limestone	1927	Fixed	Concrete and earthfill	\$46,973,540 ⁵
Main lock	259.4	2.9 above Florence, AL	110	600	94	100.0	13.0	13.0	Limestone	1959	-	-	7
General Joe Wheeler:													
Auxiliary lock	274.9	18.4 above Florence, AL	60	400	48	51.5	13.2	14.7	Limestone	1934	Fixed	Concrete and earthfill	1,796,295 ⁶
Main lock	274.9	18.4 above Florence, AL	110	600	48	51.5	13.0	13.0	Limestone	1963	Fixed	Concrete and earthfill	7
Guntersville:													
Auxiliary lock	349.0	9.1 below Guntersville, AL	60	360	39	45.0	11.8	13.0	Limestone	1937	Fixed	-	3 & 7
Main lock	349.0	9.1 below Guntersville, AL	110	600	39	45.0	12.7	13.0	Limestone	1965	Fixed	Concrete and earthfill	7
Nickajack:													
Auxiliary lock	424.7	39.4 below Chattanooga, TN	110	600	39	41.0	13.0	13.0	Limestone	1967	Fixed	Concrete	7
Main lock	424.7	39.4 below Chattanooga, TN	110	800	39	41.0	13.0	13.0	Limestone		Fixed	Concrete	7
Chickamauga	471.0	6.9 above Chattanooga, TN	60	360	49	53.0	13.0	10.0	Limestone	1939	Fixed	-	3 & 7
Watts Bar	529.9	6.8 above Breedenton, TN	60	360	58	70.0	11.8	12.0	Shale	1941	Fixed	Concrete and earthfill	3
Fort Loudon	602.3	1.3 above Lenoir City, TN	60	360	72	80.0	11.8	12.0	Limestone	1943	Fixed	Concrete and earthfill	3
Melton Hill (Clinch R.)	23.1	22.1 above Kingston, TN	75	400	54	60.0	13.0	13.0	Limestone	1963	Fixed	Concrete	2

TABLE 23-I
(continued)

TENNESSEE RIVER
(See Section 3 of Text)

1. H. Doc 328, 71 Cong., 2d sess, contains table, pp. 98 and 99, giving pertinent information concerning low dams contemplated under 1930 project. Annual Report for 1938, pp. 1218 and 1219, contains similar information pertaining to low dams in addition to existing locks and dams, including those constructed or under construction by Tennessee Valley Authority.
2. Lock and dam constructed by Tennessee Valley Authority.
3. Lock and dam constructed by Tennessee Valley Authority.
Design for lock prepared with Corps forces and funds.
4. Tailwater in canal; flight of 2 locks.
5. Constructed by the Corps under authority of sec. 124, National Defense Act of June 3, 1916, (H. Doc. 1262, 64th Cong., 1st sess.).
Actual cost of lock and dam.
6. Actual cost of lock only as constructed by the Corps; dams constructed by Tennessee Valley Authority.
7. Constructed by Tennessee Valley

NASHVILLE, TN, DISTRICT

TABLE 23-J

**TENNESSEE RIVER, TN, AL, AND KY
TOTAL COST OF EXISTING PROJECTS TO SEPT 30, 2001
(See Section 3 of Text)**

Funds	New Work	Channel Maintenance	Operation & Maintenance	Total
Regular	\$2,244,236 ^{1,2}	\$15,092,090	\$309,400,922	\$326,737,248
Maintenance	-	-	11,665	11,665
Increase of compensation rivers and harbors, 1919 (certified claims)	-	5	-	5
Total	\$2,244,236 ^{1,2}	\$15,092,095	\$309,412,587	\$326,748,918

1. In addition, surplus property valued at \$54,336 was transferred from the project without reimbursement. Excludes \$4,005,175 expended between 18900 and June 30,1935, on operation and care of works of improvement under provisions of appropriation for such purposes.
2. Excludes \$14,007,192 previous construction cost.

TABLE 23-K

**OHIO RIVER BASIN (NASHVILLE DISTRICT)
LOCAL PROTECTION PROJECTS**

Location	Type of Protection	Federal	Estimated Cost Non-Federal	Total
Cumberland, KY	Channel Improvement	\$520,000	\$240,000	\$760,000 ¹

TABLE 23-L

RESERVOIRS

Tributary Basin and Reservoir	Stream	Total Federal Cost
Center Hill Lake	Caney Fork	\$53,412,022 ¹
Dale Hollow Lake, TN and KY	Obey River	28,167,746 ^{1,2}
J. Percy Priest Dam & Reservoir, TN	Stones River	56,868,039 ^{1,3,4}
Laurel River Lake, KY	Laurel River	56,741,232 ⁵
Martins Fork Lake, KY	Martins Fork	20,479,911

1. Details of this project are in individual report.
2. Excludes \$150,000 contributed by the State of Tennessee.
3. Excludes \$46,000 contributed by Metro Gov't of Nashville, TN.

4. Formerly Stewarts Ferry Reservoir.
5. See "Other authorized multiple-purpose projects."

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES, FY 2001

TABLE 23-M INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(See Section 14 of Text)

Barbourville, KY	Apr 24, 2001
Corbin, KY	Apr 23, 2001
Harlan, KY	Apr 26, 2001
Lake City, TN	Apr 27, 2001
Middlesboro, KY (Yellow Creek)	Apr 26, 2001
Middlesboro, KY (Diversion Canal)	Apr 26, 2001
Pineville, KY	Apr 25, 2001
Spring City, TN	Apr 27, 2001
Sunbright, TN (Whiteoak Creek)	Apr 27, 2001
Wall End, KY	Apr 25, 2001
Williamsburg, KY	Apr 23, 2001

TABLE 23-N FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood Control activities pursuant to Section 205
P.L. 858, 80th Congress, as amended

Project	FY 01 Cost
Section 205 Coordination Account	\$ 17,826
Dallas Branch, Huntsville, AL	480,454
Muscle Shoals, AL	124,552
Emily Ave / Tim. St., TN	16,187
Doe River, Carter Co, TN	3,455
Lick Creek, Clinch River, Russell Co, VA	1,430
Little River, Hopkinsville, KY	103,520
Oak Grove, Christian Co., KY	8,135
French Broad River, Madison Co., NC	16,025
Bakersville, NC	400
Buena Vista Pipeline, Muscle Shoals, AL	2,219,417
Shoal Creek, Lawrenceburg, TN	15,266
Town Creek Basin, Lenoir City, TN	3,048
Big and Little Moccasin Creeks, VA	20,801
Beaver Creek & Tribs, Bristol, VA	137,284
Valley Fork Creek Paris Henry Co., TN	3,082
Cane Creek Camden, TN	1,605
Mountain City, TN	560
Beaver Creek & Tribs, Bristol, TN	133,170
Erwin, TN	83,463
First Creek, Knoxville, TN	60,062
Metro Center Levee, Nashville, TN	2,562,816
Stoney Creek, VA	4,668
Total	\$6,017,226

NASHVILLE, TN, DISTRICT

TABLE 23-N FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION
(continued)

**Emergency Bank Protection (Section 14 of the 1946
Flood Control Act, P.L. 526, 79th Congress)**

Project	FY 01 Cost
Section 14 Coordination Account	\$10,889
Shelby Bottoms Greenway & Park, TN	76,084
Pistol Creek, Maryville Public Facility, TN	5,879
N. Chickamauga Creek, Dayton Pike Bridge	18,183
Dry Creek WTP, Cumberland River, Davidson Co., TN	254,453
Blannahassett Island, French Broad River	25,336
Lakeshore Park, Knoxville, TN	39,990
North 1st Sewer, Nashville, TN	2,202
Pennington Gap, VA	621
Total	\$ 433,637

LOUISVILLE, KY DISTRICT
LOUISVILLE, KY DISTRICT

This district encompasses southwestern Ohio, all of Central Kentucky and portions of western and eastern Kentucky, the southern 3/4 of Indiana, and southeastern Illinois, all included in the drainage basin of the Ohio River and its tributaries (exclusive of Tennessee and Cumberland Rivers) from mile 438 (below Pittsburgh)

immediately upstream from Foster, KY., to the mouth of the Ohio.

All cost and financial statements for projects are listed at the end of this chapter. All other tables are referenced in text and also appear at the end of this chapter.

IMPROVEMENTS

Navigation - Channels and Harbors Page

1. Open Channel Work, Licking River, KY.....24-2

Navigation - Locks and Dams

2. Construction of Locks and Dams, Ohio River.....24-2
3. Green and Barren Rivers, KY24-2
4. Kentucky River, KY24-2
5. Open Channel Work, Ohio River24-3
6. Other Authorized Navigation Projects24-3
7. Navigation Work Under Special Authorization24-3

Flood Control - Local Protection

8. Beargrass Creek24-3
9. Duck Creek, OH24-3
10. Holes Creek, OH24-4
11. Louisville Waterfront Park.....24-4
12. Mill Creek, OH.....24-4
13. Ohio Environmental Infrastructure24-4
14. Ohio River Flood Protection24-5
15. Ohio River Greenway24-5
16. Pond Creek, KY24-5
17. Pond Creek Floodplain24-6
18. Salyersville, KY24-6
19. Southwestern Jefferson County, KY.....24-6
20. Southern & Eastern, KY24-6
21. Wabash River, New Harmony, IN24-7
22. White River, Indianapolis Central Waterfront, IN24-7
23. White River, Indianapolis, IN (North).....24-8

Flood Control - Reservoirs

24. Barren River Lake, KY24-8
25. Brookville Lake, KY24-8
26. Buckhorn Lake, KY.....24-9
27. Caesar Creek Lake, OH.....24-9
28. Cagles Mill Lake, IN24-9
29. Carr Creek Lake, KY.....24-10
30. Cave Run Lake, KY.....24-10
31. Cecil M. Harden Lake, IN24-10
32. Clarence J. Brown Dam & Reservoir, OH.....24-11
33. Green River Lake, KY.....24-11
34. J. Edward Roush Lake, IN.....24-11
35. Mississinewa Lake, IN.....24-12

36. Monroe Lake, IN24-12
37. Nolin Lake, KY.....24-12
38. Ohio River Basin (Louisville District).....24-13
39. Patoka Lake, IN24-13
40. Rough River Lake and Channel Improvement, KY.....24-13
41. Salamonie Lake, IN.....24-14
42. Taylorsville Lake, KY24-14
43. Wabash River Basin24-15
44. West Fork of Mill Creek Lake, OH.....24-15
45. William H. Harsha Lake, OH.....24-15
46. Inspection of Completed Flood Control Projects24-16
47. Other Authorized Flood Control Projects24-16
48. Flood Control Works Under Special Authorization.....24-16

General Investigations

49. Surveys.....24-16
50. Preconstruction Engineering and Design24-16
51. Coordination with other Agencies24-16
52. Collection and Study of Basic Data24-16

Tables

- Table 24-A Cost and Financial Statement24-17
- Table 24-B Authorizing Legislation.....24-23
- Table 24-C Other Authorized Navigation Projects24-27
- Table 24-D Not applicable
- Table 24-E Other Authorized Flood Control Projects24-28
- Table 24-F Not applicable
- Table 24-G Deauthorized Projects24-30
- Table 24-H Principal Features of Green and Barren Rivers and Kentucky River Navigation Systems24-32
- Table 24-I Ohio River Basin - Total Cost of Basin Plan24-33
- Table 24-J Wabash River Basin - Total Cost of Basin Plan24-37
- Table 24-K Inspection of Completed Flood Control Projects24-38
- Table 24-L Flood Control Work Under Special Authorization.....24-40
- Table 24-M General Investigations24-42

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Navigation - Channels and Harbors

1. OPEN CHANNEL WORK, LICKING RIVER, KY

Location. The Licking River originates in southeastern Kentucky and flows generally northwesterly to its confluence with the Ohio River at Covington, KY, mile 470.2 below Pittsburgh, PA. The Licking River Basin includes the drainage area of the Licking River, and all other left bank tributaries of the Ohio River from Markland Locks and Dam (Ohio River Mile 531.5) upstream to Meldahl Locks and Dam (Ohio River Mile 436.2).

Existing project. There are no locks and dams on the Licking River. However, a navigable depth of 9 feet is maintained up to mile 7.0 on the Licking River.

Local Cooperation. None.

Terminal facilities. Facilities for bulk commodities, oil products, and coal are considered adequate for existing traffic.

Operations during fiscal year. New Work: None. Maintenance: Dredging was done where required to provide an adequate and dependable channel.

Navigation - Locks and Dams

2. CONSTRUCTION OF LOCKS AND DAMS, OHIO RIVER

For report on this improvement, see the heading under Ohio River.

3. GREEN AND BARREN RIVERS, KY

Location. Green River rises in Casey County, KY, flows northwesterly 370 miles, and empties into the Ohio River about 8 miles above Evansville, IN. Barren River rises in Monroe County, KY, flows northwesterly 130 miles, and empties into Green River 1/2 mile above Lock 4 and 149.5 miles above the mouth of Green River.

Existing project. Six locks and dams on Green River and one on Barren River were constructed in pools of dams to provide a navigable depth of 9 feet and width of 200 feet from the Ohio River to mile 103 Green River, 3.2 miles upstream from Paradise, KY and a navigable depth of 5.5 feet from mile 103 Green River to Mammoth Cave, KY, mile 197.8 Green River, and from mouth of Barren River mile 149.5 Green River to Bowling Green, KY, mile 30.1, Barren River. Of these facilities, only Green River L&D 1 and 2 are still operational. Green River L&D 3, 4, 5, 6 and Barren River L&D 1 are maintained by the Corps in a caretaker status.

Fluctuations in stage vary considerably at different locks. At Lock 3, Green River, ordinary high stages are from 12 to 15 feet above pool level, and at Lock 1, Barren River, from 7 to 10 feet above pool. Maximum stages of record are 34 feet above normal pool stage at Lock 3, Green River, and 29 feet at Lock 1, Barren River, obtained during floods of 1937 and 1913, respectively. (See Table 24-B for authorizing legislation and Table 24-H for principal features of the locks and dams.)

Local Cooperation. Fully complied with.

Terminal facilities. Coal handling facilities located on the Green River between miles 81.5 and 108.1 near South Carrollton, Rockport, Paradise and Rochester, Kentucky, are considered adequate for existing commerce.

Operations during fiscal year. New Work: None. Maintenance: Consisted of operation and maintenance of Locks and Dams 1 and 2 and Green River. Maintenance of fencing at the properties of Green River L&D 3, 4, 5, and 6 and Barren River L&D 1.

Condition at end of fiscal year. Locks and Dams 1 and 2, Green River, are in good condition. Dam 3 on the Green and Dam 1 on the Barren are in fair condition and the locks at those locations are in poor condition. Lock 4, Green River, is in poor condition. Dam 4, Green River, failed May 24, 1965, when 120 feet washed out. Breach later widened, and repairs have been permanently deferred. Pool of Dam 1, Barren River, is maintained for local small boat use, but navigation through lock is suspended because of loss of lower pool. Operation activity was discontinued at Lock 4 Green River and Lock and Dam 1 Barren River in January 1974 and at Lock 3, Green River in September 1981. The residences and associated buildings and certain real estate at Lock 4 Green River and Lock and Dam 1 Barren River were disposed of in January 1975. Operation of Locks 5 and 6, Green River, was discontinued August 1951, as they were no longer used by river traffic. Controlling project depth in lower 103 miles of Green River is 9 feet; controlling depth from mile 103 to Bowling Green, KY, is 5.5 feet. Channel of Green River above Lock 3 is no longer maintained.

4. KENTUCKY RIVER, KY

Location. Formed by confluence of its North and Middle Forks about 4 miles east of Beattyville in east central Kentucky, (South Fork joins the main stream at that location), flows northwesterly and empties into Ohio River at Carrollton, KY, mile 545.8 below Pittsburgh, PA.

Existing project. Provides for 14 locks and fixed dams to give, in connection with improvement of Ohio River, slack water navigation of 6 feet minimum depth from Ohio River to places on the three forks that are short distances above Beattyville, KY. Length of 6-foot-depth project on main stem of Kentucky River is 258.6 miles to confluence of Middle and North Forks. Cost of completed new work is \$4,281,529. River frequently rises to 35 feet or higher. Extreme height at Lock 1 due to flood backwater from Ohio River is 60.3 feet, while extreme floods reach height of 47.6 feet at Lock 4, and 35.5 feet at Lock 14. At some intermediate locks extreme height of floods exceeds 40 feet. All flood heights refer to upper pool gages. Existing project was adopted by 1879 River and Harbor Act (H. Ex. Doc. 47, 45th Cong., 3d Sess., and Annual Report, 1879, p. 1398). Operation and care of locks and dams were included in project July 1, 1935, under provision of Permanent Appropriations Repeal Act of June 26, 1934. (See Table 24-H for principal features of the locks and dams.)

LOUISVILLE, KY DISTRICT

On December 19, 1976, the lock operation schedules for commercial traffic and recreational craft on the Kentucky River System were reduced from continuous 24-hour year-round operation to two-shift year-round operation of Locks 1 through 4, intermittent daily operation of Locks 5 through 10, and intermittent operation five days weekly of Locks 11 through 14. Since that time the hours for operation of Locks 5 through 14 have been reduced in several increments. On October 1, 1981, Locks 5 through 14 were closed to traffic and placed in caretaker status. Locks 5, 6, 8, 9, and 10 were in operation for 15 weekends during fiscal year 1982 and closed at the end of this period. Locks 5 through 14 were leased to the Commonwealth of Kentucky on May 21, 1985. The Commonwealth of Kentucky operated these locks on weekends during the summer boating seasons through the Fiscal Year. The lease expired on October 15, 1989, and Locks 5 through 14 were closed to traffic and placed in caretaker status. The Commonwealth of Kentucky continued operation again under a lease agreement signed in 1990 with several extensions that allow the Commonwealth to operate the Locks until 2019. The Corps continues to operate Locks 1 through 4 on a seasonal basis. In Fiscal Year 1993 the Corps began repairs to dams 5 through 14 in preparation for transfer to the Commonwealth. During fiscal year 2000 the Corps began repairs to the middle sections of dams 13 and 14. Physical completion is scheduled for fiscal year 2002. In December 1996 the Assistant Secretary of the Army (CW) signed the quitclaim transfer deed for Lock and Dam 10 for direct transfer from the Corps to the Commonwealth. The Corps continues efforts to transfer Locks and Dam 5-9 and 11-14 to the Commonwealth.

Licenses. Federal Regulatory Commission License No. 539, to Kentucky Utilities Co., at Dam 7, Kentucky River, Annual charge, \$4,400; total collections through September 30, 2001, \$346,005.

Terminal facilities. Facilities for bulk commodities are considered adequate for existing traffic.

Operations during fiscal year. New Work: None. Maintenance: Consisted of operation and maintenance of Locks and Dams 1 through 4 and removal of shoals, snags, and slides as required to maintain an adequate channel for existing traffic between mouth of river and Dam 5 at mile 82.2 Kentucky River.

Condition at end of fiscal year. Existing project was completed in 1917. Work accomplished was rehabilitation of the five old State locks and dams and construction of new Locks and Dams 6 to 14 inclusive. Repairs have been made to deteriorated locks and dams as required to keep locks in operation and maintain pool levels above dams except in extreme dry weather, when some pools fall below normal levels, details in Annual Reports for 1963, 1964, and 1965. Channel work was performed as required to provide for existing river traffic. Controlling navigable depth in length of river covered by existing project was 6 feet at end of fiscal year.

5. OPEN CHANNEL WORK, OHIO RIVER

For report on this improvement, see this heading under

Ohio River.

6. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 24-C.

7. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

None.

Flood Control - Local Protection

8. BEARGRASS CREEK, KENTUCKY

Location. The project is located in eastern Jefferson County in the suburbs of Louisville, Kentucky, along the South Fork Beargrass Creek and Buechel Branch.

Existing Project. The project consists of construction of eight detention basins, about 2,000 linear feet of channel improvement, and 1,400 linear feet of floodwall/levee on the South Fork of Beargrass Creek and Buechel Branch. The project will provide protection to 830 structures (combination of residential and commercial). Of those structures, 314 will be removed from the 100-year flood plain. The 100-year flood plain will be reduced an average of 1.5 feet, as a result of project implementation. The project was authorized by the Water Resource Development Act of 1999. Estimated cost of the new work is \$12,438,000 of which \$8,085,000 is federal cost and \$4,353,000 is non-federal cost.

Local Cooperation. The non-Federal cost sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). A PED Phase cost sharing agreement with MSD was executed in January 1998. The Chief of Engineers report approved the project in May 1998. A Project Cooperation Agreement (PCA) with MSD was executed in September 2001.

Operations during fiscal year. Work this year included execution of the PCA and preparation of plans and specifications for the first and second construction contracts.

Conditions at end of fiscal year. The project is about 20% complete. Design is complete for the first construction contract which is expected to be awarded in 3rd quarter FY2002.

9. DUCK CREEK, OH

Location. The project area is located in the City of Cincinnati and the Village of Fairfax in Hamilton County, Ohio. The project encompasses 3.2 miles of the stream and begins approximately 2 miles upstream of the confluence of Duck Creek with the Little Miami River.

Existing project. The project consists of approximately 7,100 feet of concrete flood wall, 3,300 feet of earth levee, 8,500 feet of riprapped stream bank, 1,200 feet of channel relocation, 1,100 feet of culvert, demolition of an abandoned highway bridge, widening of a railroad bridge, a pump station, and automatic road closure, and an emergency access road. Estimated cost of new work is \$37,145,000 of which \$32,945,000 is Federal and \$4,200,000 is non-Federal. The project was

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

originally authorized by the Water Resources Development Act of 1996 and reauthorized by the Water Resources Development Act of 2000.

Local Cooperation. The non-Federal sponsors are the City of Cincinnati and the Village of Fairfax. The Project Cooperation Agreement (PCA) was executed in December 1997.

Operations during fiscal year. Work this year included real estate acquisition, completion of plans and specifications on two phases, and completion of one construction contract.

Condition at end of fiscal year. The project is about 25 percent complete overall with design approximately 85 percent complete.

10. HOLES CREEK, OH

Location. Project area is located on Holes Creek in West Carrollton, Montgomery County, Ohio. West Carrollton is situated in the southwestern portion of Ohio and is a suburb of Dayton. Holes Creek drains 28.2 square miles and empties into the Great Miami River at river mile 72.6.

Existing project. Project consists of approximately 4,300 feet of channel widening (80-foot bottom width) with associated bank protection. The existing box culvert type Conrail bridge will be replaced with a 70-foot clear span structure. Project will provide protection to 428 structures in West Carrollton and Moraine. Estimated total cost of new work is \$11,220,000 Federal and \$1,480,000 non-Federal.

Local Cooperation. The non-Federal cost-sharing partner is the Miami Conservancy District (MCD). MCD formed the Holes Creek/Owl Creek Conservancy Subdistrict to act as formal sponsor for this project. The Subdistrict entered into the Project Cooperation Agreement with the Government in September 1996. Funds were provided to the Subdistrict by Montgomery County, the City of West Carrollton, the City of Moraine, and Miami Township.

Operations during fiscal year. Work this fiscal year included completion of the second construction contract, additional hydraulic models, and develop design on additional required features.

Conditions at end of fiscal year. Additional work (including a levee and property relocations) are required to provide the project outputs. A technical report and plans and specifications will be developed followed by construction of the new features.

11. LOUISVILLE WATERFRONT PARK, LOUISVILLE, KY

Location. Louisville, Jefferson County, Kentucky, on the left bank of the Ohio River at river mile 603.

Existing Project. The existing project consists of developing a master plan for the development of the Ohio River Shoreline. The proposal includes a marina facility, café, boat-launching facilities, playgrounds, and walking trails. The design was authorized by the Conference Report for the Omnibus Consolidated and Emergency

Supplemental Appropriations. The current language permits the Corps to prepare the master plan and continue design. In order to move into the construction phase authorization is needed in the next Water Resources Development Act.

Local Cooperation. The non-Federal cost sharing partner is the Louisville Waterfront Development Corporation. Once the master plan is approved, a design agreement will need to be executed.

Operations during fiscal year. Work this year consisted of initiating a master plan for the project.

Conditions at end of fiscal year. The master plan is scheduled to be complete in May FY2002.

12. MILL CREEK, OH

Location. Project is located along the 18-mile length of Mill Creek and three-fourths mile length of East Forke.

Existing project. 17.5 miles of channel improvement, 2 miles of levees, three pumping plants, modification of 29 bridges, and the addition of two pumping units at the present Mill Creek Barrier Dam, located near the Ohio River, are included in the project. Acquisition and development with appropriate landscaping of 620 acres along the creek will be provided for high-density urban oriented recreational use.

Local Cooperation. Section 3, Flood Control Act of 1936 as amended, applies. An assurance agreement covering local cooperation requirements for the project consistent with Section 221 of the 1970 Flood Control Act and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 was executed by the Millcreek Valley Conservancy District February 6, 1975, and for the Secretary of the Army March 28, 1975. A recreation cost-sharing contract was executed by the Conservancy District February 25, 1975, and approved by the Secretary of the Army May 28, 1975. A Contributed Funds Agreement for the General Reevaluation Report was executed in August 1998. An Operations and Maintenance Agreement for the completed portions of the project was also executed in August 1998.

Operations during fiscal year. New Work: The U.S. Army Corps of Engineers has initiated a General Reevaluation Report that would provide a new course of action for completing the project. Additional studies have been identified and the Corps is reanalyzing the time and funding needed to complete the General Reevaluation Report. In addition, an agreement was executed wherein the Corps can complete repairs to previously constructed sections of the project and turn them over to the local sponsor for assumption of full maintenance on those portions of the total project. All further design and construction activities are unprogrammed. Maintenance: During the 2000 flood season no benefits were realized.

Condition at end of fiscal year. Construction of channel and levee-Sections 2,3,4A, and 7A, Phase 1, are complete. Project is about 52 percent complete overall. The General Reevaluation Report is approximately 30% complete.

13. OHIO ENVIRONMENTAL

INFRASTRUCTURE SECTION 594**PROGRAM**

Location. The project location includes the entire state of Ohio which includes portions of the Louisville, Huntington, Buffalo, and Pittsburgh Districts. The program is for the design and construction assistance of environmental infrastructure projects.

Existing Projects: Under the Section 594 Authority, we have 2 projects selected and in progress in Logan and Clark counties, OH.

Logan County – Village of Belle Center Sewer project: Design of approximately 50,000 linear feet of gravity sewer line and force main and necessary lift stations to collect residential waste from E-One grinder pumps. Construction portion included purchase of all grinder pumps. Total Corps cost: \$540,000. PCA signed June 2001.

Clark County – Springfield, OH Southern Interceptor Sewer Project: Design of approximately 42,000 linear feet of gravity sewer, 8,900 feet of force main, and a major sewer pump station. Construction portion to be determined at a later date. Total Corps cost: \$1,500,000. PCA scheduled FY02.

Local Cooperation. Project Cooperation Agreements are required for each project.

Operations during fiscal year. PCA was signed for Logan County and design completed. Construction was initiated.

Conditions at end of fiscal year. PCA for one county signed and design completed. Construction was initiated. One additional PCA scheduled for execution in FY02.

14. OHIO RIVER FLOOD PROTECTION (INDIANA SHORELINE), IN

Location. The six existing local flood protection projects are located along the Indiana shore from Ohio River mile 492 in Lawrenceburg downstream to mile 792 in Evansville. They are in the communities of Evansville, Tell City, Cannelton, New Albany, Jeffersonville-Clarksville, and Lawrenceburg.

Existing project. Each of the six local flood projects was constructed by the Corps and have been locally operated and maintained. All six projects were constructed to protect against the 1937 flood plus three feet of freeboard. Rehabilitation measures are necessary at each of the six sites in order to maintain their integrity and to insure that they continue to provide the benefits for which they were designed. Rehabilitation would consist of sliplining (or where necessary replacement) of all pipes and culverts which are part of the flood protection facilities, replacing aging pump station equipment, restoring expansion joints and closures, and repairing, as needed, floodwalls and other structures. Estimated cost of new work (2001) is \$7,283,000 of which \$5,462,000 is Federal and \$1,821,000 is non-Federal.

Local Cooperation. The following Project Cooperation Agreements (PCA) have been executed with the communities: Lawrenceburg PCA - September 1998,

Evansville - November 1998, Tell City PCA - June 1998, Cannelton PCA - September 1999, New Albany - November 1999 and Jeffersonville-Clarksville - November 1999.

Operations during fiscal year. Construction is complete at Tell City, Lawrenceburg, and Evansville and substantially complete at Cannelton.

Conditions at the end of fiscal year. Project is about 60 percent overall with design 100 percent complete. The award of construction contracts at New-Albany and Jeffersonville - Clarksville are delayed pending receipt of Federal funding.

15. OHIO RIVER GREENWAY PUBLIC ACCESS, IN

Location. The Ohio River Greenway is a seven-mile linear corridor that extends from the City of Jeffersonville through the Town of Clarksville to the City of New Albany, Indiana, along the Ohio River Shoreline. The project extends from the Ohio River Mile 602 to Ohio River Mile 609. The corridor adjoins the McAlpine Locks and Dam project and the Falls of the Ohio National Wildlife Conservation Area on the Indiana side of the river.

Existing project. The project features consist of a vehicular parkway, pedestrian and multi-use paths, a bridge, and two levee cuts for additional access to the river. The project was authorized by the Water Resources Development Act of 1996. Estimated cost for the project is \$35,000,000 of which \$17,500,000 is federal cost and \$17,500,000 is non-federal cost.

Local Cooperation. There are four non-federal sponsors: The Ohio River Greenway Development Commission, the City of New Albany, the Town of Clarksville, and the City of Jeffersonville. The Project Cooperation Agreement is scheduled for execution in FY 2002.

Operation during fiscal year. Work this year included project design and preparation of the PCA.

Condition at end of fiscal year. The project was approved for construction by the ASA(CW) in April 2000. The project is 6% complete overall.

16. POND CREEK, LOUISVILLE, KY

Location. The project is located in the central and eastern portions of the 126 square mile Pond Creek watershed in southern Jefferson County, Kentucky.

Existing project. The project consists of constructing a 1500 acre-feet detention basin storage facility along Northern Ditch. An existing abandoned rock quarry adjacent to Fishpool Creek will be converted to a detention basin. Approximately 2.4 miles of the Pond Creek channel will be enlarged as well as 1.5 miles of Northern Ditch. A multi-purpose maintenance road/recreation trail will be constructed along the length of the Pond Creek channel improvement. In addition, three inactive settling basins owned by the local sponsor will be converted into an environmental restoration site. Estimated cost of new work (2001) is \$19,300,000 of which \$13,538,000 is Federal and \$5,762,000 is non-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Federal. The project was authorized by the Water Resources Development Act of 1996.

Local Cooperation. The non-Federal cost-sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). MSD has included all funds necessary for their cost share of the project in their capital budget plan. The Project Cooperation Agreement (PCA) was executed in March 1998.

Operations during fiscal year. Work this year includes construction of Phase III Melco Basin and preparation of contract documents for the final phase of the project, Phase IV Channel Improvements.

Conditions at end of fiscal year. The project is about 75 percent complete. Design is 95 percent complete. The first three phases of the construction project will be completed. The Melco Basin design was completed, advertised for construction, and awarded in April 2000. The plans and specifications for the Phase IV Channel Improvements will be ready to advertise.

17. POND CREEK, KENTUCKY, FLOODPLAIN EVACUATION.

Location. Metropolitan Louisville, Jefferson County, Kentucky.

Existing project. Initiate a study to evaluate the purchase and demolition of residences that lie in the Pond Creek Drainage Basin within 100-year floodplain that experience significant flooding. The property would be allowed to revert to wetlands and riverine habitat. Additional improvements may also be evaluated such as removal of fill material and planting of native trees, shrubs, and grasses. The Conference Report for the Omnibus Consolidated and Emergency Supplemental Appropriations for fiscal year 2001 provided the initial funding for the project. Additional funds of \$425,000 were appropriated in the Energy and Water Development Appropriations Act of 2002. The estimated cost of a Decision Document is \$100,000. The remaining funds would be used for planning, engineering and design upon review and approval of the Decision Document.

Local Cooperation. The non-federal cost-sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). Once a Decision Document is approved and a viable project is identified, a Design Agreement will be executed with a non-federal sponsor.

Operations during fiscal year. Preparation of a Decision Document to identify flood prone structures in the Pond Creek watershed and evaluate the feasibility of removing those structures from the floodplain.

Conditions at end of fiscal year. Development of a Decision Document was initiated in February 2001 and is expected to be complete in September 2002.

18. SALYERSVILLE, KY

Location. Project is located along the banks of the Licking River from approximately mile 266 and 271 in Magoffin County, Kentucky along the Mountain Parkway about 75 miles southeast of Lexington, Kentucky.

Existing Project. The most cost-effective and feasible plan to provide the authorized level of protection (1978 flood protection) is called the "Cut-Thru Plan" and includes two channel cut-thrus, a barrier dam at the upstream cut-thru, and an 0.8 mile reach of channel improvement connecting the two cut-thrus. Estimated total cost of new work is \$8,541,000 of which \$7,730,000 is Federal and \$811,000 is non-Federal.

Local Cooperation. The local sponsor qualifies for an "ability to pay" reduction pursuant to Section 103(m) of the 1986 Water Resource Development Act. Based on current costs and economics, the local sponsor share would be 9.5 percent of the total project cost. The Project Cooperation Agreement (PCA) was executed in August 1995. The construction contract was awarded in September 1996 and completed in July 1998.

Operations during fiscal year. Construction was completed in FY 99.

Conditions at the end of fiscal year. Project is complete, except for pending real estate actions on two tracts of land.

19. SOUTHWESTERN JEFFERSON COUNTY, KY

Location. In Jefferson County, KY, on left bank of Ohio River from mile 616 to 628.6.

Existing project. Construction of 68,500 feet of levee, 1,550 feet of concrete wall, four pumping plants, and other necessary appurtenances. Project provides protection for 24,100 acres against Ohio River floods equal to 1937 flood of record with 3-foot freeboard. Cost of new work is \$70,049,492, of which \$60,207,439 is Federal, and \$9,842,053 is non-Federal. Project was authorized under Flood Control Act of August 1968. Recreation as a project purpose has been deferred.

Local Cooperation. Section 3 Flood Control Act of 1936 as amended applies. In addition, local interests agree to administer project land and water areas for recreation and fish and wildlife enhancement; and to pay, contribute in kind or repay (which may be through user fees) with interest, one-half of the separable first cost of the project allocated to recreation and fish and wildlife enhancement; and bear all costs of operation, maintenance and replacement of lands and facilities for recreation and fish and wildlife enhancement. Jefferson County Fiscal Court expressed intent to fulfill requirements by resolution dated April 4, 1967. Formal assurances of local cooperation for the flood protection portion of the project was executed by resolution of Jefferson County Fiscal Court, adopted September 17, 1971, and assurances for the recreation portion of the project was executed by similar resolution, adopted September 14, 1971. Authorization-of-entry for levee and floodwall sections 1,2,3,4,4A,5 and Pond Creek Pump Plant have been furnished. Project was transferred to local interest on September 8, 1989.

Operations during fiscal year. New Work: Project is 100 percent complete except for the collection of the judgement from the pump contractor. During the 2001 flood season, no benefits were realized.

20. SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE SECTION 531 PROGRAM

Location. The project location comprises a 27 county region in southern and eastern Kentucky, which includes portions of Louisville, Huntington, and Nashville Districts. The program is for the design and construction assistance of environmental infrastructure projects.

Existing Projects. Under the Section 531 Authority, to date we have 3 projects physically complete. These projects all lie within Menifee, Floyd, and Laurel counties. In FY02, we will financially close out these three projects. We also have 6 wastewater related designs in progress in the counties of Jackson, Magoffin, Pulaski, Leslie, Perry, and Laurel.

Manifee County – Means Sewer Project: Lift station, manholes, service tees, service laterals, 20K feet of gravity sewer and forced main lines, replacement of 2 existing pumps, and modifications to one pump station to service 90 residences. Total Corps cost: \$225,000. PCA was signed March 1999 and construction was complete in July 2000.

Floyd County – Beaver Elkhorn Waterline Extension Project: 12,000 feet of waterline, 20,000 gallon tank, pumping station, and telemetry to service 42 residences. Total Corps cost: \$300,000. PCA was signed October 1999 and construction was complete in March 2000.

Laurel County – Sampson Street Sewer line Extension Project: 2,100 linear feet of 8" gravity sewer line, manholes, and other appurtenances to service 16 residences. Total Corps cost: \$88,000. PCA was signed June 2000 and construction was complete in FY 2001.

Jackson County – McKee Utility Improvement Project: Design for rehabilitation of existing WWTP and installation of 12,000 feet of 8" sewer lines to service 470 residences. Total Corps cost: \$124,000. PCA was signed September 2000.

Magoffin County – Salyersville/Magoffin County Sewer line Extension Project: Design a new 620,000 GPD WWTP, and 3 major sewer line extensions to service 410 residences. Total Corps cost: \$270,000. PCA was signed June 2000.

Pulaski County – Science Hill Sewer Project: Design PCA for a sewage collection line extension for approximately 170 homes. Total Corps cost: \$113,000. PCA was signed September 2001.

Leslie County – Hyden Sewer Project: Design/Construction PCA for the extension of sewer lines in City to approximately 64 homes in Rock House Creek are. Total Corps cost: \$300,000. PCA was signed September 2001.

Perry County – Vicco Wastewater Treatment and Collection Project: Design PCA for new treatment plant and collection lines. Total Corps cost: \$200,000. PCA scheduled for execution November 2001.

Laurel County – Northland Estates Sewer Project: Design PCA for a new collection system treated by local facility. 39 homes in Northland Estates and 60 additional

in surrounding area. Construction portion to be selected at a later date and under a separate PCA. Total Corps cost: \$75,000. PCA scheduled for execution November 2001.

Work is authorized under Section 531 of the Water Resources Development Act of 1996 (P.L. 104-303).

Local Cooperation. Project Cooperation Agreements have been executed for Pulaski County, Leslie County, Menifee County, Floyd County, Laurel County, Magoffin County, and Jackson County. PCA negotiations are underway with Perry County for a new treatment plant and collection lines and with Laurel County for a new collection system treated by local facility.

Operations during fiscal year. Work this year included completion of PCAs with Pulaski and Leslie Counties, and construction of sewer line extension in Corbin, KY, in Laurel County. Design continued on Magoffin and Jackson Counties and was initiated on Pulaski and Leslie Counties.

Condition at end of fiscal year. Three projects are physically complete. Two PCAs were signed resulting in two new designs during fiscal year. We have two additional PCAs scheduled for execution in early FY02.

21. WABASH RIVER, NEW HARMONY, IN

Location. The project is located in Posey County in Southwestern Indiana along the left bank of the Wabash River. The town is about 120 miles southwest of Louisville, Kentucky, and seven miles south of I-64.

Existing Project. The project consists of providing erosion control along the left bank of the Wabash River at New Harmony, Indiana. This will be accomplished by placing stone beginning at a point 950 meters (3117 feet) upstream of the State Highway 66 bridge and continuing upstream for a distance of 1470 meters (4823). To comply with environmental commitments, wildlife supporting hardwood seedlings will be planted along the project right-of-way. Estimated cost of the new work is \$2,828,000 of which \$2,121,000 is Federal and \$707,000 is non-Federal. The project was authorized by the Water Resources Development Act of 1996.

Local Cooperation. The non-Federal cost sharing partners are the Town of New Harmony, Indiana and the Department of Natural Resources (IDNR). Both cost-sharing partners included all funding necessary for their cost share of the project in their FY 99 and FY 00 budgets. A Project Cooperative Agreement (PCA) was executed in January 2000. The sponsor has completed real estate acquisition.

Operations during fiscal year. Work this year included award of the construction contract for streambank protection in February 2001.

Conditions at the end of fiscal year. The project is about 90 percent complete. Design of the project is complete and construction has been initiated. Project completion is estimated in FY 2002.

22. WHITE RIVER, INDIANAPOLIS CENTRAL WATERFRONT, IN

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Location. Project is located along the White River in the City of Indianapolis, IN.

Existing project. Project consists of infrastructure improvements such as public access parking, walkways, pedestrian bridges, landscaping, lighting, and water features. The project also includes continuous public access along both sides of the White River waterfront through the construction of walkways, bike paths, landscaped promenades, and the rebuilding and reconfiguring of the existing concrete slopewalls. Estimated cost of new work is \$113,354,951 of which \$52,573,808 is Federal and \$60,781,143 is non-Federal.

Local Cooperation. The non-Federal sponsors are the White River State Park (State of Indiana) and the City of Indianapolis. All lands for the project have been acquired by the sponsors. The Project Cooperation Agreement (PCA) was executed in December 1997. Amendments to the PCA were executed in June 1999 to add the Upper Canal feature to the Project and in February 2001 to add the Beveridge Paper feature.

Operation during fiscal year. Work this year includes continuation of one construction contract, completion of one construction contract, and continuation of the remainder of plans and specifications.

Condition at end of fiscal year. Project is about 70 percent complete overall with design approximately 99 percent complete and construction about 70 percent complete.

Flood Control - Reservoirs

23. WHITE RIVER INDIANAPOLIS (NORTH), IN

Location. The project is located in metropolitan Indianapolis, Indiana, along the northern reaches of the White River within Marion County.

Existing project. The project is located along 3 miles of the White river in the City of Indianapolis, IN. and consists of a combination of levees and floodwalls, rehabilitation of an existing pump station, two mitigation sites, and a flood warning system. Estimated cost of the project is \$16,995,000 of which \$12,746,000 if Federal and \$4,249,000 is non-Federal.

Local Cooperation. The non-Federal cost-sharing partner is the City of Indianapolis, Department of Capital Asset Management. The Sponsor has included all funding necessary for their cost share of the project in their FY 01, 02, and 03 budgets.

Operations during fiscal year. The Project Cooperation Agreement (PCA) was executed in December 2000. Final real estate actions were proceeding as necessary for an early FY02 award of the construction contract for rehabilitation of the existing pump station. Installation of the flood warning system was substantially complete.

Conditions at the end of fiscal year. The project is 20 percent complete. Construction is authorized and funding provided. The flood warning system is nearly complete. The contract for rehabilitation of the existing pump station is scheduled for award in early FY 2002.

24. BARREN RIVER LAKE, KY

Location. Dam is on Barren River, 79.5 miles above its confluence with Green River and 10 miles northeast of Scottsville, KY. At flood control pool reservoir extends upstream about 40 miles in Barren and Allen Counties, KY. (See U.S. Geological Survey map of Lucas, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is rolled earth and rockfill, 146 feet high and 3,970 feet long, with gate-controlled outlet works and uncontrolled open-cut spillway. Total storage capacity is 815,200 acre-feet (768,000 for flood control and 46,600 for water supply storage). For further details, see page 1125 of Annual Report for 1962. Cost of the completed project is \$27,479,717 including \$2,335,055 Federal funds and \$108,418 non-Federal funds for construction of recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1938.

Local Cooperation. None required by authorizing act. Under provision of Water Supply Act of 1958, contract with City of Glasgow for water supply storage was approved by Secretary of Army on October 4, 1965. Terms require City to pay \$23,433, which is project cost allocated to water storage plus capitalized prepayment of proportionate share of operation, maintenance, and major replacement costs. A contract, with the Commonwealth of Kentucky for development of additional campsites, shoreline protection and breakwater extension at Barren River Lake State Park under the cost-sharing category of the completed projects program was approved by the Secretary of the Army November 4, 1977.

Operations during fiscal year. New work: Rehabbed tower hydraulic system. Maintenance: Routine maintenance was performed. During the 2001 flood season estimated damages of \$762,000 were prevented. Visitor expenditures were \$39,960,914.

Condition at end of fiscal year. Construction started in March 1960 and all major construction and relocation items were completed in October 1964. Project was placed in operation in March 1964. Land acquisition is complete.

25. BROOKVILLE LAKE, IN

Location. Dam site is on East Fork of Whitewater River, 2.4 miles above confluence with West Fork, and about 1-1/2 miles north of Brookville, Indiana. The reservoir lies in Franklin and Union Counties, Indiana. (See U.S. Geological Survey map of Brookville, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam is earthfill, 182 feet high and 3,004 feet long, with gate-controlled outlet works, and uncontrolled open spillway. Total storage capacity is 359,600 acre-feet (214,700 for flood control, 89,300 for water supply, and 35,500 for conservation). A minimum pool of 20,100 acre-feet is maintained. Cost of completed new work is \$45,402,565 of which \$37,905,073 is Federal cost and \$7,497,492 is non-Federal contribution for water supply storage. Project was authorized by 1938 Flood Control Act.

LOUISVILLE, KY DISTRICT

Local Cooperation. None required by authorizing act. Contract with State of Indiana for water supply storage under provisions of Water Supply Act of 1958 was approved by Secretary of Army, August 5, 1965. Under terms of contract, State paid initial costs allocated to water supply feature of project plus capitalized prepayment of proportionate share of operation and maintenance costs.

Operation during fiscal year. New work: Installed new bypass valve. Maintenance: During 2001 flood season no damages were prevented. Routine maintenance was performed. Visitor expenditures were \$21,605,316.

Condition at end of fiscal year. Construction was started in November 1965 and project was placed in operation January 1974. Construction and land acquisition are complete.

26. BUCKHORN LAKE, KY

Location. Dam is on Middle Fork of Kentucky River, 43.4 miles above mouth, and 0.5 mile upstream from Buckhorn, Perry County, KY. Reservoir extends upstream about 34 miles and lies in Leslie and Perry Counties, Kentucky. (See U.S. Geological Survey map of Buckhorn, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth and rockfill type, with gate controlled outlet works. Total storage capacity is 168,000 acre-feet, of which 157,600 are for flood control. For further details, see page 1120 of Annual Report for 1962. Cost of completed new work is \$11,766,206 including \$386,707 for construction of recreation facilities under the completed projects program. Existing project was authorized by general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. Department of Parks of the Commonwealth of Kentucky has undertaken management of certain lands and recreational facilities in accordance with license granted by Secretary of the Army on June 29, 1962.

Operations during fiscal year. New work: Installed new bypass valve. Maintenance: Routine maintenance was performed. Operation for flood control during 2001 flood season prevented damages of \$194,000. Visitor expenditures were \$6,323,110.

Condition at end of fiscal year. Construction started in September 1956 and project was placed in operation in August 1960. All construction and land acquisition is complete.

27. CAESAR CREEK LAKE, OH

Location. Dam site is on Caesar Creek, about 3.0 miles above its confluence with Little Miami River, in Warren County, OH, about 3.5 miles southeast of Waynesville, OH, and 10.5 miles northeast of Lebanon, OH. Reservoir lies in Warren, Clinton, and Green Counties, OH. (See U.S. Geological Survey map of Oregonia, OH.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. It includes an earth and rockfill dam, four saddle dams, outlet works

and an uncontrolled saddle spillway. Total storage capacity of reservoir is 242,200 acre-feet, of which 148,500 acre-feet are reserved for flood control storage. Cost of new work is \$62,881,010 Federal and \$5,037,000 non-Federal reimbursement for water supply storage. Existing project was authorized by general authorization for Ohio River Basin in 1983 Flood Control Act.

Local Cooperation. None required. However, the State of Ohio requested inclusion in the project of storage for future municipal and industrial water supply uses. Contract with State of Ohio for water supply storage under provisions of Water Supply Act of 1958, as amended, was approved by Secretary of the Army, May 20, 1970. Under terms of contract, State will reimburse the Federal Government for costs allocated to water supply storage over a period not to exceed 50 years after use of this storage is initiated plus estimated annual amount for cost of operation, maintenance and major capital replacements required for the water supply facilities.

Operations during fiscal year. New work: New ADA fishing platform in Tailwater. Maintenance: Routine maintenance was performed. Flood damages estimated at \$11,207,000 were prevented during the 2001 flood season. Visitor expenditures were \$36,403,383.

Condition at end of fiscal year. Construction was started in January 1968 and the project was placed in operation January 1978. Land acquisition is complete. All relocation and construction features are complete.

28. CAGLES MILL LAKE, IN

Location. Dam is on Mill Creek, 2.8 miles above its confluence with Eel River, in Putnam County, IN, and about 25 miles east of Terre Haute, IN. Reservoir extends upstream about 11 miles and is in Putnam and Owen Counties, IN. (See U.S. Geological Survey map of Poland, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth and rockfill embankment. Total storage capacity is 228,100 acre-feet, of which 201,000 acre-feet are for flood control. For details, see Annual Report for 1962, page 1136. Cost of new work is \$4,369,997, which includes \$4,256,903 Federal funds, and \$113,094 contributed funds for construction of recreation facilities under the completed projects program. Existing project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. None required. State of Indiana has undertaken development and management of recreation facilities for use of the public in reservoir area in accordance with license granted by Secretary of the Army on January 17, 1952. A contract with the Indiana Department of Natural Resources for expanding the boat ramp and parking area at Site 3, Lieber State Park, under the cost sharing category of the completed projects program was signed by the State of Indiana on August 26, 1981 and approved by the Deputy Chief of Engineers on March 26, 1982.

Operations during fiscal year. New Work: Installed

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

new bypass valve. Maintenance: Routine maintenance was performed. Operation for flood control during the 2001 flood season prevented damages of \$5,675,000. Visitor expenditures were \$7,435,534.

Condition at end of fiscal year. Construction started in July 1948 and completed in June 1953. Recreation facilities constructed under the cost-sharing category of the completed projects program are complete.

29. CARR CREEK LAKE, KY

Location. Dam site is 8.8 miles above mouth of Carr Fork, a tributary of North Fork of Kentucky River, 16 miles upstream from Hazard, KY. The reservoir lies entirely within Knott County. (See U.S. Geological Survey maps of Carrie and Vicco, KY.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. Dam is rock and earth fill with impervious core, 720 feet long and 130 feet high, with uncontrolled open cut spillway through left abutment. Outlet works has two control gates and 8-foot diameter conduit to stilling basin. Total storage capacity is 47,700 acre-feet (31,600 for flood control and 4,300 for water quality control). A higher level seasonal pool for recreation is provided. Cost of completed work is \$50,854,826 including \$76,724 for recreation facilities under the completed projects program. Project was authorized by the 1962 Flood Control Act.

Local Cooperation. None required for reservoir project. Division of Flood Control and Water Usage of Commonwealth of Kentucky gave assurance that encroachments on downstream channel capacity will be prevented. Under the terms of a new lease, the State of Kentucky assumed operation of the Irishman Creek Beach and Campground in 1996. This establishes a State Park at the lake and also provides the impetus for additional resort development. Project name was changed from Carr Fork Lake, KY to Carr Creek Lake, KY effective 16 February 1997 by Public law 104-303, 12 October 1996.

Operations during fiscal year. New work: Installed new bypass valves. Maintenance: Routine maintenance was performed. Operation for flood control during the 2001 flood season prevented damages of \$4,361,000. Visitor expenditures were \$11,289,095.

Condition at end of fiscal year. Project was placed in operation January 1976. Construction started in January 1966 is complete.

30. CAVE RUN LAKE, KY

Location. Dam site is on Licking River, about 4 miles upstream from U.S. Highway 60 near Farmers, KY, and 7 miles southwest of Morehead, KY. Reservoir will be in Rowan, Bath, Morgan, and Menifee Counties, KY. (See U.S. Geological Survey maps of Salt Lick and Morehead, KY.)

Existing project. Plan provides for construction of a reservoir for flood control and allied purposes. Dam is rolled earthfill, with gate controlled outlet works and uncontrolled open spillway. Total storage capacity is

614,700 acre-feet (438,500 for flood control and 28,300 for water quality control). Cost of new work is \$81,159,541 of which \$6,900,000 is U.S. Forest Service cost. Project was authorized by Flood Control Acts of June 22, 1936 and June 28, 1938.

Local Cooperation. None required.

Operations during fiscal year. New work: Installed new bypass valves. Maintenance: Routine maintenance was performed. Operation for flood control during the 2001 flood season prevented damages of \$4,401,000. Visitor expenditures were \$12,347,493.

Condition at end of fiscal year. Project has been in operation since February 1974. Construction was started in June 1965 and is complete. Land acquisition is complete. All relocation and construction features are complete.

31. CECIL M. HARDEN LAKE, IN

Location. Dam is on Raccoon Creek, 32.4 miles above its confluence with Wabash River, and 25 miles northeast of Terre Haute, IN. At flood control pool, reservoir extends upstream about 15 miles in Parke and Putnam Counties, Indiana. (See U.S. Geological Survey Map of Mansfield, IN.)

Existing project. A rolled earth dam and reservoir, for flood control and allied purposes. Total storage capacity is 132,800 acre-feet of which 116,600 acre-feet area for flood control. For details, see Annual Report for 1962, page 1132. Cost of completed new work is \$6,987,807 made up of \$6,260,134 for the initial project and \$373,678 Federal cost and \$353,995 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. Project name was changed from Mansfield Lake to Cecil M. Harden Lake by Public Law 93-521, December 14, 1974.

Local Cooperation. State of Indiana has undertaken management of lands and recreational facilities in accordance with license granted by Secretary of the Army on April 19, 1961. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost sharing category of the completed projects program.

Operation during fiscal year. New work: Installed new bypass valves. Maintenance: Routine maintenance was performed. Flood damages of \$3,643,000 were prevented during the 2001 flood season. Visitor expenditures were \$36,457,203.

Condition at end of fiscal year. Construction started in October 1956 and all major items of work were completed December 1961. Land acquisition is complete. Project has been in operation since August 1960. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are completed.

LOUISVILLE, KY DISTRICT

32. CLARENCE J. BROWN DAM & RESERVOIR, OH

Location. Dam site is just east of Springfield, Clark County, OH, at mile 7.3 of Buck Creek, a tributary of Mad River. (See U. S. Geological Survey maps of New Moorefield and Springfield, OH.)

Existing project. A reservoir for flood control and allied purposes. It includes an earthfill dam, 6,620 feet long and 72 feet high, with gated outlet works and open cut spillway with concrete chute through right abutment. Total storage capacity of reservoir is 63,700 acre-feet (32,900 for flood control and 20,800 for water quality control). Federal cost of completed project is \$22,083,660. Project was authorized by 1962 Flood Control Act. Project name was changed from Buck Creek Dam and Reservoir to Clarence J. Brown Dam and Reservoir by Public Law 90-46, July 4, 1967.

Local Cooperation. Assurances from City of Springfield, Springfield Conservancy District, and Clark County, Ohio, covering protection against detrimental channel encroachment below dam to mouth of Buck Creek, were accepted March 5, 1964.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. Flood damages of \$205,000 were prevented during the 2001 flood season. Visitor expenditures were \$22,067,128.

Condition at end of fiscal year. Construction started in September 1966. Land acquisition and all major project features were completed in November 1973. The project was placed in operation in January 1974.

33. GREEN RIVER LAKE, KY

Location. Dam site is 305.7 miles above mouth of Green River in Taylor County, KY, about 8 miles south of Campbellsville. Reservoir lies in Taylor and Adair Counties. (See U.S. Geological Survey map of Cane Valley, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth and rockfill, 141 feet high and 2,350 feet long. Outlet works is slide gate-controlled and spillway open and uncontrolled. Total storage capacity is 723,200 acre-feet (560,600 for flood control and 64,500 for low-flow augmentation). Cost of completed new work is \$33,462,330, consisting of \$33,105,184 initial project funds, \$40,001 for water supply, and \$317,145 Federal funds for construction of recreation facilities under the completed projects program. Existing project was authorized under general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. None required by authorizing act. Taylor County, by lease approved by Secretary of Army February 15, 1968, undertook operation and maintenance of Smith Ridge public access area. In May 1980, the lease was amended to turn back responsibility for maintenance and operation of the site to the Corps. Under provision of Water Supply Act of 1958, contract with City of Campbellsville for water supply storage was

approved by Secretary of Army April 23, 1969. Terms require city to repay, with interest and annual charges for operation, maintenance and major replacement, the investment cost of \$85,765 allocated to its water supply storage space. The Department of Parks of the Commonwealth of Kentucky, by lease approved by Secretary of Army, October 4, 1971, has undertaken the management of the Lone Valley public access area.

Operations during fiscal year. New work: New shop roof. Maintenance: Routine maintenance was performed. Operation for flood control prevented damages estimated at \$426,000 during 2001 flood season. Visitor expenditures were \$30,286,044.

Condition at end of fiscal year. Construction began in August 1965 and all major construction and relocation items were completed in 1972. Project has been in operation since February 1969. Project including all land acquisition complete in 1973. Construction of sanitary dump station for boats at Dam Site in conformance with EPA and State standards and rehabilitation of sewage treatment facilities, washhouses and restrooms at Smith Ridge site is complete.

34. J. EDWARD ROUSH LAKE, IN

Location. Dam site is on Wabash River, about 2 miles from Huntington, IN, and 411.4 miles above mouth. Reservoir is in Huntington and Wells Counties, IN. (See U.S. Geological Survey maps of Majenica and Mt. Etna, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam consists of a rolled earth embankment 4,700 feet long and 89 feet high, a concrete spillway and outlet section 155 feet long, and a concrete gravity section 310 feet long. Spillway is controlled by three gates, and outlet works by six sluices. Project also provides local flood protection for Markle, IN. Total storage capacity of reservoir is 153,100 acre-feet, of which 149,000 acre-feet is reserved for flood control storage. Cost for new work is \$19,621,777 made up of \$19,428,355 Federal cost for the initial project and \$193,422 non-Federal contributed funds for low flow augmentation storage, and \$155,354 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1958. Project name was changed from Huntington Lake, IN to J. Edward Roush Lake, IN effective 16 February 1997 by Public law 104-303, 12 October 1996.

Local Cooperation. Local interests must contribute in cash an amount equal to one percent of project first cost. State of Indiana has met this obligation. Contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army May 17, 1974, provided for that agency to design and construct certain additional recreational facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost shared category of the completed projects program.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. Operation for flood control prevented damages estimated

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

at \$3,082,000 during 2001 flood control season. Visitor expenditures were \$9,547,221.

Condition at end of fiscal year. Land acquisition and all major construction complete. Project was placed in operation January 9, 1969. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

35. MISSISSINewa LAKE, IN

Location. Dam site is 7.1 miles above mouth of Mississinewa River, which flows into Wabash River about 2 miles upstream from Peru, IN. At flood control pool level, reservoir extends upstream about 28 miles, in Wabash, Grant, and Miami Counties, IN. (See U.S. Geological Survey map of Peoria, IN.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. It includes an earthfill dam 137 feet high and 8,100 feet long, gate-controlled outlet works, and an uncontrolled open spillway through right abutment. Total storage capacity of reservoir is 368,400 acre-feet, of which 345,100 acre-feet are reserved for flood control storage. Cost for completed new work is \$24,686,807 made up of \$23,791,816 Federal cost for the initial project, \$239,200 non-Federal contributed funds for low flow augmentation storage. \$174,392 Federal cost and \$174,392 non-Federal contribution in kind for recreation facilities under the completed projects program, and \$307,007 for major rehabilitation. Project was authorized by the Flood Control Act of 1958.

Local Cooperation. Local interests must contribute in cash an amount equal to 1 percent of project first cost. State of Indiana assumed this obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost sharing category of the completed projects program.

Operations during fiscal year. New work: Installed new bypass valves. Maintenance: Routine maintenance was performed. Continued, unexplained, settlement along 300 feet of the crest of the dam is occurring at an approximate rate of 0.5 inch per year. An on-site meeting with Headquarters and Division representatives was held to assess the problem and receive guidance. Headquarters has recommended a three phased, comprehensive investigation and evaluation to begin in FY 1999 to determine the cause of the subsidence and the remedial measures required to correct it. Initial investigations and evaluation began in FY 1999. The Louisville District prepared a Dam Major Rehabilitation Evaluation to recommend modifications that would ensure the structural integrity and operational adequacy of the project. This report was submitted in February FY 2000 and approved 5 January 2001. A construction contract was awarded 31 August 2001 for placement of 2600 feet of concrete cut-off wall 150' to 180' depth to rock foundation to remediate the poor foundation conditions causing the settlement. The contract amount is \$29,800,000 and has a

three year performance period. The project is on the HQUSACE High Priority List. Operation for flood control prevented damages of \$1,823,000 during 2001 flood season. Visitor expenditures were \$19,255,208.

Condition at end of fiscal year. Construction and land acquisition is complete. Project was placed in operation in May 1968. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

36. MONROE LAKE, IN

Location. Dam is on Salt Creek, a tributary of White River, 25.9 miles above mouth, and 2 miles east of Harrodsburg, Monroe County, IN. At flood control pool level, reservoir will extend upstream 44 miles in Monroe, Brown, and Jackson Counties. (See U.S. Geological Survey map of Clear Creek, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth core and rock shell, with gate-controlled outlet works and uncontrolled open spillway. Total storage capacity is 441,000 acre-feet (258,800 for flood control and 159,900 for low flow augmentation.) Cost of completed new work is \$16,570,774 consisting of \$7,032,484 Federal funds, \$7,797,604 non-Federal contributed funds for low-flow regulation storage and \$870,343 Federal cost and \$870,343 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by 1958 Flood Control Act, modifying comprehensive plan for Ohio River Basin.

Local Cooperation. Section 3, 1944 Flood Control Act applies. Local interests must contribute 54.1 percent of project cost, this being the proportion allocated to low-flow regulation feature, plus a capitalized amount representing that part of average annual maintenance and operation cost allocated to low-flow regulation. State of Indiana assumed this cost-sharing obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost sharing category of the completed projects program.

Operations during fiscal year. New work. None. Maintenance: Routine maintenance was performed. Operation for flood control prevented damages of \$848,000 during 2001 flood season. Visitor expenditures were \$41,708,044.

Condition at end of fiscal year. Project is complete and was placed in operation in February 1965. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

37. NOLIN LAKE, KY

Location. Dam is on Nolin River 7.8 miles above its confluence with Green River, about 70 air miles southwest of Louisville, KY. Reservoir extends upstream about 57 miles and is in Edmonson, Grayson, Hart, and

LOUISVILLE, KY DISTRICT

Hardin Counties, KY. (See U.S. Geological Survey maps of Nolin Reservoir and Dickey's Mill, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is rockfill-earth core type with gate-controlled outlet works, and uncontrolled open spillway. Total storage capacity is 609,400 acre-feet, of which 545,600 acre-feet is for flood control. For further details of project, see Annual Report for 1962, page 1124. Cost of new work is \$17,193,278 including \$2,594,274 for construction of recreation facilities. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. None required for authorized project. State of Kentucky contributed \$18,195 for increased width of dam for public road. Kentucky has assumed responsibility of the Brier Creek site to establish a State Park in 1996. Improvements are planned by Kentucky.

Operations during fiscal year. New work: Installed new bypass valves. Maintenance: Routine maintenance was performed. During the 2001 flood season damages of \$336,000 were prevented. Visitor expenditures were \$64,350,195.

Condition at end of fiscal year. Construction started in January 1959. Project was completed and placed in operation in March 1963.

38. OHIO RIVER BASIN (Louisville District)

Location. Works covered by this project are a series of levees, floodwalls, channel improvements, and reservoirs in Ohio River Basin within Louisville District.

Existing project. Individual projects considered in comprehensive plan within the Louisville District. (See Table 24-B for authorizing legislation and Table 24-I for cost and listing of projects in the basin plan.)

Operations during fiscal year. No costs were incurred except for these projects for which individual reports are given.

39. PATOKA LAKE, IN

Location. Dam site is in Dubois County, IN, 118.3 miles above mouth of Patoka River, and 50 miles west-northwest of New Albany, IN. Reservoir extends into Dubois, Orange, and Crawford Counties. (See Geological Survey map of Cuzco, IN.)

Existing project. Reservoir for flood control and allied purposes. Dam is earth and rock fill, 1,550 feet long and 85 feet high, with gate-controlled outlet works and uncontrolled open spillway. Total storage capacity is 301,600 acre-feet (121,000 for flood control and 167,500 for water supply and water quality control). Cost of new work is \$76,238,627 of which \$56,469,954 is Federal cost for other construction, and \$20,182,445 is non-Federal contribution for water supply storage and recreation facilities. Project was authorized by 1965 Flood Control Act, and emergency measures and snagging and clearing the Patoka River downstream of Patoka Lake to ensure effective operation of the project for flood control was directed by 1981 Appropriation Act for Energy and Water Development.

Local Cooperation. Local interests are required to reimburse the Federal Government for costs allocated to water supply storage is initiated, presently estimated at 29.316 percent of the joint-use facilities cost, exclusive of interests, plus \$287,000 for the cost of operating and maintaining water supply storage for a period of 50 years, plus \$42,000 for the cost of major capital replacements required for water supply storage space for a period of 50 years. Local interests are also required to pay, contribute in kind, or repay (which may be through user fees) with interest, one-half of the separable first cost of the project allocated to recreation. Present laws of the State of Indiana require that agency to make cash contributions during construction of the project. Local interests must also agree to prevent encroachments on channel of Patoka River from dam to mouth, and to pay allocated initial and annual maintenance and operation costs for water supply storage. Formal assurances of local cooperation, executed by the Indiana Natural Resources Commission, were accepted August 27, 1970. Contracts with State of Indiana for water supply and recreation were approved by the Secretary of the Army November 2, 1970.

Operations during fiscal year. New work: None. Maintenance: Sinkholes in the spillway area that are connected to porous limestone layers continue to be an operational concern. A study was completed and recommended a \$7.2 million major rehabilitation of the dam. As the design developed, it was determined that the seepage repair could be achieved by using a new method of grout injection utilizing a computer monitoring system and grout mixes for varying underground conditions. A contract was awarded in July and construction is progressing. Operation for flood control during the 2001 flood season prevented damage estimated at \$2,049,000. Visitor expenditures were \$18,113,329.

Condition at end of fiscal year. Construction was started in July 1972. Engineering studies are complete. Real Estate relocation work is complete. All major features are complete. Permanent impoundment was started in February 1978 and the project was placed in operation about August 1980.

40. ROUGH RIVER LAKE AND CHANNEL IMPROVEMENT, KY

Location. Dam is on Rough River, 89.3 miles above its confluence with Green River, 160.3 miles above Ohio River, and about 60 miles southwest of Louisville, KY. Reservoir extends upstream about 30 miles and is in Breckinridge, Hardin, and Grayson Counties, KY. Channel improvement work is on Rough River, Barnett Creek, and West Fork of Barnett Creek. (See U.S. Geological Survey maps of McDaniels and Falls of Rough, KY.)

Existing project. Reservoir is for flood control and allied purposes. Dam is rolled earthfill type, with gate-controlled outlet works. Storage capacity is 334,380 acre-feet, of which 314,210 acre-feet is for flood control. Project also includes channel clearing of lower Rough River, and channel improvement on Barnett Creek, a tributary of Rough River. For further details, see page 1126 of Annual Report for 1962. Cost of completed new

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

work is \$10,643,001 including \$890,008 Federal funds and \$22,612 non-Federal funds for construction of recreation facilities under the completed projects program. Existing project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. Modification of previously approved plan to include channel improvement items was authorized by the 1944 Flood Control Act.

Local Cooperation. None required for construction of reservoir unit. Provisions of Section 3, Flood Control Act of 1936, are applicable to channel improvements. Assurances were obtained from Ohio County for channel improvement. Department of Parks, Commonwealth of Kentucky, has undertaken management of certain lands and recreation facilities in accordance with license granted by Secretary of the Army on August 18, 1961. A contract with the Commonwealth of Kentucky to improve and pave road at the Below Dam Area - State Park under the cost sharing category of the completed projects program was approved by the Secretary of the Army November 4, 1977.

Operations during fiscal year. New work: Installed new bypass valves and placed new shower house floors. Maintenance: Routine maintenance was performed. Operation for flood control during the 2001 flood season prevented damages estimated at \$4,133,000. Visitor expenditures were \$46,500,867.

Condition at end of fiscal year. Construction started in November 1955 and reservoir was placed in operation in June 1959. Land acquisition and all major items of construction and relocation are complete.

41. SALAMONIE LAKE, IN

Location. Dam site is 3.1 miles above mouth of Salamonie River, which enters Wabash River about 6 miles upstream from Wabash, IN. Reservoir extends upstream about 27 miles at flood control pool and lies in Wabash and Huntington Counties, IN. (See U.S. Geological Survey maps of Lagro and Majenica, IN.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. It includes an earthfill dam with a maximum height of 133 feet and length of 6,100 feet, gate-controlled outlet works with a 16-foot-diameter conduit and an uncontrolled open spillway through right abutment. Total storage capacity of reservoir is 263,600 acre-feet, of which 250,500 acre-feet is for flood control storage. Cost for new work is \$17,039,321 made up of \$16,244,356 Federal cost for the initial project and \$163,867 non-Federal contributed funds for low-flow augmentation storage and \$315,549 Federal cost and \$315,549 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1958.

Local Cooperation. Local interests must contribute in cash an amount equal to one percent of project first cost. State of Indiana assumed this obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional

recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe, and Salamonie Lakes under the cost sharing category of the completed projects program.

Operations during fiscal year. New work: Installed new bypass valves. Maintenance: Routine maintenance was performed. During the 2001 flood season, operation for flood control prevented damages of \$4,361,000. Visitor expenditures were \$20,333,084.

Condition at end of fiscal year. Land acquisition and all major construction and relocation contracts are complete. Reservoir was placed in operation in spring 1967. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

42. TAYLORSVILLE LAKE, KY

Location. Dam site is in Spencer County, KY, 60.0 miles above the confluence of Salt River and Ohio River, 4 river miles above Taylorsville and 36.9 river miles above Shepherdsville, KY. (See U.S. Geological Survey map of Taylorsville, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is an earth and rock fill structure, 164 feet high and 1,280 feet long. Outlet works are slide gate controlled and spillway is uncontrolled open cut. Total storage capacity is 291,670 acre-feet (211,230 for flood control, winter months), and 52,245 for water quality and fish and wildlife. Cost of completed new work is \$87,004,456, including \$82,991,363 federal funds and \$4,013,093 non-federal funds. Project was authorized by 1966 Flood Control Act.

Local Cooperation. Local interests must agree to administer project land and water areas for recreation; pay, contribute in kind, or repay (which may be through user fees) with interest one-half of the separable first costs of the project allocated to recreation; bear all costs of operation, maintenance, and replacement of recreation lands and facilities under P.L. 89-72. Local interests must also agree to prevent encroachments on flow-carrying capacities of stream channels below the reservoir to the extent needed to provide reasonably effective reservoir operation. Commonwealth of Kentucky has indicated intent to fulfill requirements for recreation cost sharing and has assumed responsibility for channel encroachments and pollution control. The Commonwealth furnished assurance agreements covering prevention of encroachment on capacity of stream channels in April and May 1973 and executed the recreation cost sharing contract in April 1973. On April 2, 1980, the U.S. District Court for the Western District of Kentucky ruled that the 1973 recreation cost sharing contract between the Commonwealth and the United States that provided for repayment after completion was invalid under the Kentucky Constitution which prohibits one General Assembly from obligating future appropriations that would be binding on a subsequent legislature. In response to the Court's ruling, the Commonwealth and the United States entered into a new contract providing for cash contributions. Contract was approved by the Secretary of the Army June 11, 1980.

LOUISVILLE, KY DISTRICT

The contract was found to be valid and enforceable by the Court July 14, 1980.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2001 flood season operation for flood control prevented damages of \$504,000. Visitor expenditures were \$23,293,279.

Condition at end of fiscal year. Engineering and design studies are complete. Land acquisition is 100 percent complete. Construction was started in June 1974. All major construction items are complete. The dam gates were closed in January 1983 for permanent impoundment. Dedication ceremony was May 28, 1983. Two sections of county road were washed out by heavy rainfall. Both sections were originally upgraded for project operation prior to washout. The repairs were completed by the Corps in 1996-97 at a cost of \$700,000.

43. WABASH RIVER BASIN

Location. Works covered by this project are located in the Wabash River Basin, a drainage area of 33,100 square miles, covering parts of Indiana, Illinois, and Ohio.

Existing project. One local protection project and five reservoir projects were authorized for this basin plan. (See Table 24-B for authorizing legislation and Table 24-J for project list and total cost of basin plan.)

44. WEST FORK OF MILL CREEK LAKE, OH

Location. Dam is on West Fork of Mill Creek 6.5 miles above its junction with Mill Creek and 2 miles northeast of Mount Health, OH, and 10 miles north of downtown Cincinnati. Reservoir extends upstream about 3 miles and is in Hamilton County, OH. (See U. S. Geological Survey map of Glendale, OH.)

Existing project. An earth embankment dam and a reservoir for flood control and allied purposes. Total storage capacity of reservoir is 11,300 acre-feet, of which 9,850 acre-feet is for flood control. For further details, see page 1119 of Annual Report for 1962. Cost of completed new work is \$4,722,463 made up of \$3,092,941 Federal cost for the initial project, \$520,800 non-Federal cost for sewer relocation and dam, \$50,000 non-Federal contributed funds in fulfillment of project authorization and \$529,361 Federal cost and \$529,361 non-Federal contribution in kind for recreation facilities under the completed projects program. Existing project selected for construction under additional authorization for Ohio River Basin in 1946 Flood Control Act.

Local Cooperation. Local interests were to release necessary land under their control and give assurance that future channel encroachment below dam site would be prevented. For enlargement of reservoir to include a conservation pool, local interests would contribute one-half additional cost of such pool, including one-half cost of relocation of sanitary sewer, and agree to hold the United States free from damages resulting from its provision. Board of County Commissioners of Hamilton County, Ohio, adopted a resolution October 8, 1947, signifying willingness to fulfill requirements including provision of conservation pool. Assurances were

executed on same date. A contract with the United States for relocation of sanitary sewer outside reservoir area in order to include conservation pool in project was accepted by Hamilton County, in which the United States paid one-half cost of such relocation work. Hamilton County Commissioners furnished \$50,000, required as a local contribution toward additional cost of providing conservation pool. Hamilton County Park District has undertaken development and management of recreation facilities in reservoir area for use of the public in accordance with the license granted by Secretary of the Army on October 31, 1951. Contract for cost shared recreation development under the completed works program was executed by the Board of Park Commissioners, Hamilton County Park District, Ohio, in September 1975 and approved by the Chief of Engineers in December 1975.

Operations during fiscal year. New work: None. Operation for flood control during 2001 flood season prevented damages estimated at \$860,000. Visitor expenditures were \$25,324,583.

Condition at end of fiscal year. Construction started in March 1949 and reservoir was placed in operation in December 1952. Project is complete. Cost shared recreation development under the completed projects program is complete.

45. WILLIAM H. HARSHA LAKE, OH

Location. Dam site is on East Fork of Little Miami River between Batavia and Williamsburg, OH, about 6.0 miles above Batavia and 32.6 miles above mouth of the Little Miami River. Entire project lies in Clermont County, OH. (See U.S. Geological Survey map of Batavia, OH.)

Existing project. A reservoir for flood control and allied purposes. It includes an earthfill dam, outlet works, an uncontrolled saddle spillway, and a dike to close a saddle north of spillway. Total storage capacity of reservoir is 294,800 acre-feet, of which 210,600 acre-feet is reserved for flood control storage. Cost of complete new work is \$52,023,157 and a estimated \$3,485,840 non-Federal reimbursement for water supply storage. Existing project was authorized by general authorization for Ohio River Basin in 1938 Flood Control Act. Project name was changed from East Fork Lake to William H. Harsha Lake effective January 4, 1981, by Public Law 96-383, October 6, 1980.

Local Cooperation. None required. However, the State of Ohio requested inclusion in the project of storage for future municipal and industrial water supply uses. Contract with State of Ohio for water supply storage under provisions of Water Supply Act of 1958, as amended, was approved by Secretary of the Army, May 20, 1970. Under terms of contract, State will reimburse the Federal Government for costs allocated to water supply storage over a period not to exceed 50 years after use of this storage is initiated plus estimated annual amount for cost of operation, maintenance, and major capital replacements required for the water supply facilities.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Operations during fiscal year. New work: None. Maintenance: A new water intake structure was completed in 1995 to support a regional public water supply system. Operation for flood control during 2001 flood season prevented damages estimated at \$3,454,000. Visitor expenditures were \$33,776,832.

Condition at end of fiscal year. Construction was started in May 1970. Project is complete and reservoir was placed in operation in February 1978.

46. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to maintain and operate local protection projects in accordance with regulations prescribed by Secretary of the Army. Inspections were made to determine extent of compliance and to advise interests as necessary to measures required to correct deficiencies. (See Table 24-K for the latest dates of inspection performed on the local protection projects, channel improvements, and bank revetments).

Fiscal year costs were \$282,487. Total costs to September 30, 2001, were \$5,678,775.

47. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 24-E.

48. FLOOD CONTROL WORKS UNDER SPECIAL AUTHORIZATION

Environmental restoration activities pursuant to Section 1135, 1986 Water Resources Act, as Amended. Costs for fiscal year were \$97,460 for two feasibility reports; \$15,309 for plans and specifications for one project; \$324,283 for four projects under construction; \$587 for one terminated study; \$26,765 for four preliminary restoration plans; and \$14,586 for coordination activities.

Reflects federal cost only, for full costs see table 24-L.

Flood control activities pursuant to Section 205, 1948 Flood Control Act, Public Law 858, 80th Congress, as amended. Cost for fiscal year were \$398,107 for nineteen feasibility reports; \$302,374 for plans and specifications on five projects; \$8,142 for one project under construction; \$156,908 for five projects completing construction; and \$21,211 for coordination activities.

Reflects federal cost only, for full costs see table 24-L.

Emergency bank protection (Section 14, 1946 Flood Control Act, Public Law 526, 79th Congress). Costs for fiscal year were \$92,284 for sixteen planning and design analyses; \$287,762 for one project under construction; \$63,030 for one project completing construction; and \$21,658 for coordination activities.

Reflects federal cost only, for full cost see table 24-L.

Aquatic Ecosystems Restoration (Section 206). Cost for fiscal year was \$29,794 for four planning and design analyses; \$108,413 for thirteen preliminary restoration plans; and \$17,793 for coordination activities.

Clearing and Snagging (Section 208). Cost for fiscal year was \$6,765 for two planning and design analyses and

\$3,000 for coordination activities.

Emergency flood control; activities pursuant to Public Law 99, 84th Congress, and antecedent legislation. The Louisville District participated in the following emergency management activities. West Virginia Flooding July through October. The Debris Planning and Response Team as well as Steve Rager as the ESF#3 Team Leader removed 35,000 tons of flood debris, removed 714 damages structures and built nine temporary housing sites.

Following the terrorist attacks on September 11th, Mr. Mike Beaird deployed to New York to serve as the ESF#3 Team Leader for clean up of the World Trade Center. In addition the Louisville Debris Team was deployed to the Pentagon to serve as advisors for that clean up. The District EOC remained at Activation Level IV for three days then reduced to Level III for one week then reduced once again to Level II where it remained through the end of the year. This is the longest the EOC has remained this active. Other activities included organizing a security investigation team that looked at security weaknesses of all the Districts projects. This teams survey, scheduled to be completed at the end of FY02, will recommend security enhancements to all District projects.

Costs for fiscal year were: \$376,955 for Disaster Preparedness; \$15,081 federal funds and \$337,367 in reimbursable funds for emergency operations; and \$16,802 for inspection of non-federal flood works.

General Investigations

49. SURVEYS

Fiscal year costs was \$566,696 for one navigation study; \$637,460 for ten flood damage prevention studies; \$1,381 for two special studies; \$34,979 for one review of authorized projects; and \$106,479 for four miscellaneous activities.

Reflects Federal cost only, for full cost see Table 24-M.

50. PRECONSTRUCTION ENGINEERING AND DESIGN

Fiscal year costs were \$1,869,219 for two Navigation projects; \$45,687 for three flood control projects.

Reflects Federal cost only, for full cost see Table 24-M.

51. COORDINATION WITH OTHER AGENCIES

Fiscal year total cost was \$103,826 for one coordination with other agencies projects and \$103,826 for four planning assistance to states projects.

Reflects federal cost only, for full costs see Table 24-M.

52. COLLECTION AND STUDY OF BASIC DATA

Fiscal year total cost was \$253,224 for seven flood plain management projects; and \$6,937 for one hydrologic study.

**TABLE 24-A
CONTINUED**

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	1998	1999	2000	2001	Total to Sep 30, 2001	
Navigation - Channels and Harbors								
1	Open Channel Work, Licking River	New Work						
		Approp.	\$ 0	\$ 0	\$ 0	\$ 0	0	
		Cost	\$ 0	\$ 0	\$ 0	\$ 0	0	
		Maint.						
		Approp.	16,500	(1369)	0	0	187,816	
		Cost	16,423	(1,292)	0	0	187,816	
Navigation - Locks and Dams								
3	Green and Barren Rivers, KY	New Work						
		Approp.	0	0	0	0	13,808,222	1
		Cost	0	0	0	0	13,808,222	1
		Maint.						
		Approp.	1,922,000	1,929,836	1,681,014	1,305,186	50,316,498	2, 3
		Cost	1,920,778	1,953,241	1,681,016	1,305,039	50,316,323	
4	Kentucky River, KY	New Work						
		Approp.	0	0	0	1,996,000	6,172,749	
		Cost	0	0	0	104,780	4,281,529	
		Maint.						
		Approp.	2,452,000	2,743,908	2,953,554	1,944,654	84,216,640	4, 5, 45
		Cost	2,451,441	2,810,773	2,952,266	1,943,526	84,209,458	4, 5, 46
		Minor Rehab.						
		Approp.	0	0	0	0	556,956	
		Cost	0	0	0	0	556,956	
Flood Control, Local Protection								
8	Beargrass Creek	New Work						
		Approp.	0	0	0	70,000	70,000	
		Cost	0	0	0	68,367	68,367	
9	Duck Creek	New Work						
		Approp.	868,000	882,000	1,825,000	362,700	4,403,700	55
		Cost	428,979	1,398,032	1,720,169	545,925	4,352,582	56
10	Holes Creek, OH	New Work						
		Approp.	2,396,439	1,404,691	2,935,915	201,000	7,307,790	51
		Cost	627,953	2,873,681	2,584,891	424,950	6,853,700	52
11	Louisville Waterfront Park	New Work						
		Approp.	0	0	0	100,000	100,000	
		Cost	0	0	0	60,504	60,504	
12	Mill Creek, OH	New Work						
		Approp.	1,955,000	(444,800)	2,237,734	361,000	101,455,676	6
		Cost	604,847	937,195	1,968,526	517,123	101,321,026	7
13	Ohio Environmental Infrastructure	New Work						
		Approp.	0	0	0	620,000	620,000	
		Cost	0	0	0	566,417	566,417	
14	Ohio River Flood Protection (Indiana Shoreline), IN	New Work						
		Approp.	1,300,000	1,718,633	544,370	214,146	4,787,149	57
		Cost	272,167	1,088,735	1,354,457	1,270,049	4,147,059	58

**TABLE 24-A
CONTINUED**

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	1998	1999	2000	2001	Total to Sep 30, 2001	
15	Ohio River Greenway	New Work						
		Approp.	0	0	0	607,000	607,000	
		Cost	0	0	0	601,034	601,034	
16	Pond Creek, KY	New Work						
		Approp.	143,000	117,184	1,667,000	4,185,000	7,612,184	53
		Cost	243,753	1,018,888	1,694,191	4,004,512	7,150,978	54
17	Pond Creek Floodplain Evacuation	New Work						
		Approp.	0	0	0	75,000	75,000	
		Cost	0	0	0	13,599	13,599	
18	Salyersville, KY	New Work						
		Approp	2,155,500	0	0	0	9,180,019	10
		Cost	1,374,736	73,116	137,610	68,640	8,412,120	11
19	Southwestern Jefferson County, KY	New Work						
		Approp.	20,137	0	(6500)	0	60,218,720	
		Cost	7,164	409	3,612	0	60,211,051	
20	Southern & Eastern, KY	New Work						
		Approp	880,00	65,000	564,000	1,000,000	2,509,000	59
		Cost	92,448	139,659	642,397	292,850	1,167,354	60
21	Wabash River New Harmony, IN	New Work						
		Approp	470,000	1,860,000	(823,209)	1,407,609	2,914,400	8
		Cost	4,058	12,738	61,229	2,577,710	2,655,735	9
22	White River, Indpls Central Waterfront, IN	New Work						
		Approp.	5,000,000	4,000,000	7,849,000	9,980,000	35,829,000	
		Cost	4,520,218	8,696,191	10,630,509	7,591,011	31,912,207	
23	White River, Indpls (North), IN	New Work						
		Approp.	0	0	155,000	983,700	1,138,700	
		Cost	0	0	128,835	565,646	694,481	
Flood Control - Reservoirs								
24	Barren River Lake, KY	New Work						
		Approp.	0	0	0	0	27,479,717	12
		Cost	0	0	0	0	27,479,717	12
		Maint.						
		Approp.	1,766,658	2,058,008	2,197,732	2,478,457	38,742,496	13,14,15
		Cost	1,774,487	2,119,336	2,201,002	2,472,913	38,736,838	13,14,15
25	Brookville Lake, IN	New Work						
		Approp.	0	0	0	0	45,402,565	16
		Cost	0	0	0	0	45,402,565	16
		Maint.						
		Approp.	782,000	747,289	811,685	699,618	13,392,555	47
		Cost	788,799	752,636	811,022	699,959	13,391,829	47
26	Buckhorn Lake, KY	New Work						
		Approp	0	0	0	0	11,766,206	17
		Cost	0	0	0	0	11,766,206	17
		Maint.						
		Approp.	1,211,100	1,131,876	1,584,708	1,653,171	24,583,885	18
		Cost	1,265,461	1,154,188	1,585,222	1,652,161	24,582,775	18

TABLE 24-A
CONTINUED

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	1998	1999	2000	2001	Total to Sep 30, 2001	
27	Caesar Creek Lake, OH	New Work						
		Approp.	0	0	0	0	62,881,010	
		Cost	0	0	0	0	62,881,010	
		Maint.						
		Approp.	1,305,608	1,384,505	1,380,026	1,252,042	19,316,388	⁴⁸
		Cost	1,376,329	1,386,968	1,380,586	1,252,043	19,316,369	⁴⁸
28	Cagles Mill Lake, IN	New Work						
		Approp	0	0	0	0	4,369,997	¹⁹
		Cost	0	0	0	0	4,369,997	²⁰
		Maint.						
		Approp.	717,079	699,208	666,441	653,388	12,989,759	
		Cost	723,230	706,443	667,216	652,421	12,988,792	
29	Carr Creek Lake, KY	New Work						
		Approp.	0	0	0	0	\$50,854,826	²¹
		Cost	0	0	0	0	\$50,854,826	²¹
		Maint.						
		Approp.	1,400,000	1,294,586	1,608,858	1,367,678	23,808,712	²²
		Cost	1,417,835	1,309,872	1,610,528	1,369,048	23,808,712	²²
30	Cave Run Lake, KY	New Work						
		Approp.	0	0	0	0	81,159,541	²³
		Cost	0	0	0	0	81,159,541	²³
		Maint.						
		Approp.	760,945	834,703	984,129	887,116	15,115,541	⁴⁹
		Cost	772,972	836,165	984,815	885,737	15,114,162	⁴⁹
31	Cecil M. Hardin Lake, IN	New Work						
		Approp.	0	0	0	0	6,987,807	²⁴
		Cost	0	0	0	0	6,987,807	²⁴
		Maint.						
		Approp.	847,000	768,422	757,175	791,012	16,250,470	
		Cost	896,053	770,844	756,606	790,491	16,246,618	
32	Clarence J. Brown Dam & Reservoir, OH	New Work						
		Approp	0	0	0	0	22,083,660	⁶¹
		Cost	0	0	0	0	22,083,660	⁶¹
		Maint.						
		Approp.	809,114	711,164	839,262	770,716	13,143,008	⁶¹
		Cost	825,859	719,755	845,135	770,716	13,143,008	⁶¹
33	Green River Lake, KY	New Work						
		Approp.	0	0	0	0	33,462,330	²⁵
		Cost	0	0	0	0	33,462,330	²⁵
		Maint.						
		Approp.	1,791,200	2,422,788	2,171,248	2,484,281	34,332,196	²⁶
		Cost	1,793,459	2,433,917	2,148,069	2,507,644	34,331,837	²⁶
34	J. Edward Roush Lake, IN	New Work						
		Approp	0	0	0	0	19,621,777	²⁷
		Cost	0	0	0	0	19,621,777	²⁸
		Maint.						
		Approp.	1,018,000	935,301	852,598	850,326	14,697,994	
		Cost	1,023,067	946,275	850,706	853,814	14,697,353	

TABLE 24-A
CONTINUED

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	1998	1999	2000	2001	Total to Sep 30, 2001	
35	Mississinewa Lake, IN	New Work						
		Approp.	0	0	0	312,000	24,691,800	²⁹
		Cost	0	0	0	307,007	24,686,807	²⁹
		Maint.						
		Approp.	764,000	1,000,694	1,750,914	803,680	15,346,631	
		Cost	782,897	1,011,851	1,747,364	804,439	15,342,980	
36	Monroe Lake, IN	New Work						
		Approp.	0	0	0	0	16,570,774	³⁰
		Cost	0	0	0	0	16,570,774	³⁰
		Maint.						
		Approp.	736,879	733,499	689,483	676,347	15,340,161	³¹
		Cost	740,676	738,728	13,974,256	675,422	15,339,155	³¹
37	Nolin Lake, KY	New Work						
		Approp.	0	0	0	0	17,193,278	³²
		Cost	0	0	0	0	17,193,278	³³
		Maint.						
		Approp.	1,598,000	1,544,009	2,379,432	2,210,711	41,711,126	³⁴
		Cost	1,611,785	1,564,594	2,383,913	2,205,983	41,706,352	³⁴
38	Ohio River Basin Louisville District	New Work						
		Approp.	0	0	0	0	1,526,142	
		Cost	0	0	0	0	1,526,142	
39	Patoka Lake, IN	New Work						
		Approp.	0	0	266,500	2,676,000	76,645,316	³⁵
		Cost	0	0	238,642	2,683,093	76,238,627	³⁶
		Maint.						
		Approp.	1,096,526	681,825	657,069	578,774	11,269,912	
		Cost	1,128,601	670,891	672,789	577,686	11,268,822	
40	Rough River Lake & Channel Improvement, KY	New Work						
		Approp.	0	0	0	0	10,643,001	³⁷
		Cost	0	0	0	0	10,643,001	³⁷
		Maint.						
		Approp.	1,873,863	1,970,346	2,393,004	2,358,397	40,106,974	³⁸
		Cost	1,873,863	2,025,303	2,329,678	2,381,912	40,062,098	³⁸
41	Salamonie Lake, IN	New Work						
		Approp.	0	0	0	0	17,039,321	³⁹
		Cost	0	0	0	0	17,039,321	⁴⁰
		Maint.						
		Approp.	617,988	607,612	730,832	667,980	12,847,615	
		Cost	635,393	621,365	730,918	667,519	12,846,527	
42	Taylorsville Lake, KY	New Work						
		Approp.	(13,979)	0	0	0	87,004,456	⁴¹
		Cost	877	0	0	0	87,004,456	⁴²
		Maint.						
		Approp.	914,000	1,101,169	1,066,621	834,249	14,773,618	
		Cost	940,942	1,110,400	1,047,179	857,795	14,773,584	

TABLE 24-A
CONTINUED

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	1998	1999	2000	2001	Total to Sep 30, 2001
44	West Fork of Mill Creek Lake, OH	New Work					
		Approp.	0	0	0	0	4,722,463 ⁴³
		Cost	0	0	0	0	4,722,463 ⁴³
		Maint.					
		Approp.	397,882	407,592	363,362	357,116	9,453,290
		Cost	410,380	411,208	363,362	356,422	9,452,596
45	William H. Harsha Lake, OH	New Work					
		Approp.	0	0	0	0	52,023,157 ⁴⁴
		Cost	0	0	0	0	52,023,157 ⁴⁴
		Maint.					
		Approp.	1,001,145	813,601	814,294	719,366	13,583,553 ⁰
		Cost	1,035,774	829,988	814,342	718,866	13,583,051 ⁵⁰

¹ Includes \$85,000 public works funds.

² Includes \$2,000 emergency relief funds, \$204,444 "maintenance and operation of dams and improvements of navigable waters" and \$3,842,667 expended from 1888 to 30 June 1936, for operation and care from permanent indefinite appropriation.

³ Includes \$725,715 from Productive Employment Appropriation Act (PL 98-8) of 1983.

⁴ Includes \$316,871 under "maintenance and operation of dams and other improvements of navigable waters", and \$6,405,372 expended between July 5, 1885 and June 30, 1937 on operation and care from permanent indefinite appropriation.

⁵ Includes \$149,700 from Productive Employment Appropriation Act (PL 98-8) of 1983.

⁶ Includes \$52,734 in contributed funds.

⁷ Includes \$14,945 in contributed funds.

⁸ Includes \$584,400 in contributed funds.

⁹ Includes \$356,292 in contributed funds.

¹⁰ Includes \$550,019 contributed funds.

¹¹ Includes \$541,992 contributed funds.

¹² Includes \$2,224,948 Code 711 funds, \$110,107 Code 713 Federal funds and \$108,418 Code 713 non-Federal funds.

¹³ Includes \$100,000 Supplemental funds.

¹⁴ Includes \$326,900 Special Recreation Use Fees.

¹⁵ Includes \$668,025 "maintenance & operation of dams and other improvements of navigable water".

¹⁶ Includes \$7,497,492 contributed funds and \$100,706 Code 711 funds.

¹⁷ Includes \$61,451 public work acceleration executive 1963 funds, \$143,088 Code 711 funds, and \$243,619 Code 712 funds.

¹⁸ Includes \$52,240 Special Recreation Use Fees and \$336 "maintenance and operation of dams and other improvements of navigable water."

¹⁹ Includes \$35,814 Code 711 funds, \$113,321 Code 713 funds, and \$113,094 contributed funds.

²⁰ Includes \$35,814 Code 711 funds, \$113,321 Code 713 funds, and \$113,094 contributed funds.

²¹ Includes \$76,724 Code 711 funds.

²² Includes \$51,854 Special Recreation Use Fees.

²³ Includes \$6,900,000 of U.S. Forest Service Funds.

²⁴ Includes \$19,683 Code 711 funds, \$353,995 Code 713 funds, & \$353,995 non-Federal contributions in kind for recreation facilities.

²⁵ Includes \$133,413 Code 711 funds, \$183,732 Code 713 funds, and \$40,001 contributed funds.

²⁶ Includes \$114,280 Special Recreation Use Fees and \$664,025 under "maintenance and operation of dams and other improvements of navigable water".

²⁷ Includes \$155,354 Code 713 funds and \$193,422 contributed funds.

²⁸ Includes \$155,354 Code 713 funds and \$193,422 contributed funds.

²⁹ Includes \$215,000 Code 711 funds, \$174,392 Code 713 funds, \$239,200 contributed funds and \$174,392 non-Federal contribution in kind for recreational facilities.

³⁰ Includes \$1,185 Code 711 funds, \$869,158 Code 713 funds, \$7,797,604 contributed funds and \$870,343 non-Federal contribution in kind for recreational facilities.

³¹ Includes \$54,460 from Productive Employment Appropriation Act (PL 98-8) of 1983.

³² Includes \$21,897 public works acceleration executive 1963 funds and \$2,594,274 Code 711 funds.

³³ Includes \$21,897 public works acceleration executive 1963 funds and \$2,594,274 Code 711 funds.

³⁴ Includes \$204,920 Special Recreation Use Fees and \$52,000 Supplement Funds, \$527,225 "maintenance and operation of dams and other improvements of navigable water".

³⁵ Includes \$20,568,369 contributed funds.

³⁶ Includes \$20,182,445 contributed funds.

³⁷ Includes \$196,306 public works acceleration executive 1963 funds and \$867,396 Code 711 funds, \$22,612 Code 713 funds, and \$22,612 contributed funds.

³⁸ Includes \$236,640 Special Recreation Use Fees and \$668,025 under "maintenance and operation of dams and other improvements of navigable water".

³⁹ Includes \$315,549 Code 713 funds, \$163,867 contributed funds, and \$315,549 non-Federal contribution in kind for recreation facilities.

⁴⁰ Includes \$315,549 Code 713 funds, \$163,867 contributed funds, and \$315,549 non-Federal contribution in kind for

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

recreation facilities.

⁴¹ Includes \$4,013,093 contributed funds.

⁴² Includes \$4,013,093 contributed funds.

⁴³ Includes \$529,361 Code 713 funds, \$50,000 contributed funds, \$529,361 non-Federal contribution in kind for recreation facilities, and \$520,000 non-Federal cost for sewer relocation and dam.

⁴⁴ Includes \$58,571 for preconstruction planning, engineering and design completed before FY 1953.

⁴⁵ Includes \$57,000 contributed funds.

⁴⁶ Includes \$45,194 contributed funds.

⁴⁷ Includes \$3,511 "maintenance and operation of dams and other improvements of navigable water."

⁴⁸ Includes \$5,476 "maintenance and operation of dams and other improvements of navigable water."

⁴⁹ Includes \$8,126 "maintenance and operation of dams and other improvements of navigable water."

⁵⁰ Includes \$8,764 "maintenance and operation of dams and other improvements of navigable water."

⁵¹ Includes \$313,915 contributed funds.

⁵² Includes \$312,498 contributed funds.

⁵³ Includes \$700,000 contributed funds.

⁵⁴ Includes \$636,466 contributed funds.

⁵⁵ Includes \$768,000 contributed funds.

⁵⁶ Includes \$720,449 contributed funds.

⁵⁷ Includes \$979,316 contributed funds.

⁵⁸ Includes \$946,492 contributed funds.

⁵⁹ Includes \$880,000 Code 511 funds and \$1,629,000 Code 772 funds.

⁶⁰ Includes \$546,693 Code 511 funds and \$620,625 Code 772 funds.

⁶¹ Includes \$573 "maintenance and operation of dams and other improvements of navigable water".

TABLE 24-B

**LOUISVILLE, KY DISTRICT
AUTHORIZING LEGISLATION**

Acts	Work Authorized	Documents
	GREEN AND BARREN RIVERS, KY (See Section 3 of Text)	
Aug 11, 1888	Purchase of original improvement	H. Doc 111, 49th Cong., 2d Sess., Ann. Rept. 1887, p.1903 Annual Report, 1891, p. 2439
Mar 3, 1893 ¹	Construction of Lock 2, Green River	
Jul 13, 1892	Construction of Lock 5, Green River	
Jul 13, 1902	Construction of Lock 6, Green River	Annual Report, 1891, p. 2478
Mar 3, 1905 ²	Appropriated \$5,000 for continuing improvements of Green River above mouth of Big Barren River, with provision "That the Secretary of War may, in his discretion, expend such portion of said amount as may be necessary for removal of snags in Nolin River."	
Mar 3, 1909	Construct new Lock 1 and new Lock and Dam 2, Green River	S. Doc. 82, 83d Cong., 2d Sess. Rivers and Harbors Committee
Jul 3, 1930 ²	Construct new locks at Dam 5, Green River and Dam 1, Barren River; modification of Dam 5, Green River, widens bends in Bear Creek, KY	Doc. 2, 71st Cong., 1st Sess., and H. Doc. 685, 69th Cong., 2d Sess.
Jun 26, 1934 ³	Operation and care of locks and dams with War Department Appropriations for rivers and harbors	
Aug 30, 1935 ²	Improvement of Nolin River	H.D. 480, 72d Cong., 2d Sess.
Sep 3, 1954	Channel enlargement of lower 103 miles of Green River revocation of authorities for improvement of Bear Creek and Nolin River	S.D. 82, 83d Congress, 2d Sess.
	OHIO RIVER BASIN (Louisville Dist.) (See Section 27 of Text)	
Aug 28, 1937	Construct levee, floodwalls, and drainage structures for protection of cities and towns in Ohio River Basin, projects to be selected by Chief of Engineers with approval of Secretary of War, at a cost not to exceed \$24,877,000 for construction	Flood Control Committee Document 1, 75th Congress, 1st Session
Jun 28, 1938	Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable in discretion of Secretary of War and Chief of Engineers, and for initiation and partial accomplishment of plan, authorized \$75 million for reservoirs and \$50.3 million for local protection works, individual projects to be selected and approved by Chief of Engineers, subject to provision that authorization shall include diversion of Cache River above Cairo, Illinois, and protection of area north of Cairo drainage district by levees at an estimated cost of \$2 million	Flood Control Committee Document 1, 75th Congress, 1st Session
Aug 18, 1941	Additional \$45 million for further prosecution of comprehensive plan for Ohio River Basin	
Dec 22, 1944	Additional \$70 million for further prosecution of comprehensive plan for Ohio River Basin, including plan of improvement for flood control and other purposes in Kentucky River Basin Flood protection works at Taylorsville, KY at an estimated cost of \$129,350 Channel improvement of lower Rough River and Barnett Creek at an estimated cost of \$360,000	H. Doc. 504, 78 th Congress, 2d Session S.D. 105, 78th Cong., 1st Sess. H.D. 535, 78th Congress 2d Session
Jul 24, 1946	Additional \$125 million for further prosecution of comprehensive plan, including plan of improvement for flood control in Wabash River Basin, Illinois, and Indiana, at an estimated cost of \$9,629,000 Also, West Fork of Mill Creek at an estimated cost of \$1,527,000.	H.D. 197, 80th Congress 1st Session H.D. 198, 80th Cong., 1st Session
May 17, 1950	Additional \$100 million for prosecution of comprehensive plan for Ohio River Basin, including necessary bank stabilization measures at New Harmony Bridge, Indiana, at an estimated cost of \$500,000.	
Jul 3, 1958	Flood control Act of 1958 modified comprehensive plan to provide for Monroe Reservoir on Salt Creek, White River Basin, Indiana, at an estimated cost to the United States of \$4,350,000; cost to local interests, \$5,141,000.	H.D. 192, 85th Congress, 1st Session

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 24-B

AUTHORIZING LEGISLATION

CONTINUED

Acts	Work Authorized	Documents
Oct 23, 1962	Flood Control Act of 1962 deleted Jessamine Creek Reservoir on Kentucky River, Kentucky, from comprehensive plan for Ohio River Basin	H.D. 423, 87th Congress, 2d Session
Dec 30, 1963	Additional \$150 million for further prosecution of comprehensive plan for Ohio River Basin	Pub. Law 88-253, 88th Cong., 1st Session
Jun 18, 1965	Additional \$89 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 89-42, 89th Cong., 1st Session
May 12, 1967	Additional \$38 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 90-17, 90th Cong., 1st Session
Aug 13, 1968	Additional \$35 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 90-483, 90th Cong., 2nd Session
Jun 19, 1970	Additional \$69 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 91-282, 91st Cong., 2nd Session
Mar 7, 1974	Additional \$120 million for further prosecution of comprehensive plan for Ohio River Basin Fifty-four local protection projects and one reservoir project in comprehensive plan for Ohio River Basin were deauthorized August 5, 1977, under Section 12, Water Resources Development Act of 1974 Two additional local protection projects in comprehensive plan for Ohio River Basin were deauthorized November 6, 1977, under Section 12, Water Resources Development Act of 1974	Public Law 93-251, 93rd Congress, 2nd Session
Nov 13, 1995	Directed use of \$1,000,000 of funds appropriated in PL 104-46 for construction of the Ohio River Flood Protection, Indiana Project.	Public Law 104-46, 104th Congress, 2nd Session

WABASH RIVER BASIN (See Section 32 of Text)

Aug 13, 1968	Construction of five multipurpose reservoirs and one local protection project in Wabash River Basin, IL & IN, with provision that construction of Big Walnut Lake, IN, project must be approved by the President. Authorization of \$50 million for initiation of partial accomplishment of project	S.D. 96, 90th Congress, 2nd Session
Dec 29, 1981	Two multiple purpose reservoirs in Wabash River were deauthorized.	Public Law 97-128, 97th Congress, 2nd Session
May 1, 1997	Two Additional reservoir projects were deauthorized	Public Law 99-662, 99th Congress, 2nd Session Public Law 100-676 100th Congress, 2nd Session

MIAMI RIVER BASIN, PLEASANT RUN, VICINITY FAIRFIELD, OH

Nov 17, 1986	Three dry bed reservoirs and a channel improvement were authorized in Section 401 of the Water Resource Development Act of 1986.	Public Law 99-662, 99th Congress, 2nd Session
--------------	--	---

HAZARD, KENTUCKY

Nov 17, 1988	Approximately 6 miles of channel improvement were authorized in Section 3 of the Water Resources Development Act of 1988.	Public Law 100-676, 100th Congress, 2nd Session
Nov 28, 1990	Flood control measures to prevent a January 1957 flood reoccurrence in the vicinity of Hazard, Kentucky at a total cost of \$30,000,000 was authorized for design and construction in Section 108 of the Water Resource Development Act of 1990.	Public Law 101-640, 101st 2nd Session

**LOUISVILLE, KY DISTRICT
AUTHORIZING LEGISLATION**

**TABLE 24-B
CONTINUED**

Acts	Work Authorized	Documents
HOLES CREEK, OHIO		
Nov 17, 1986	The project for flood control, Miami River, Little Miami River, Interim Report No2, West Carrollton - Holes Creek, Ohio: Report of the Chief of Engineers dated December 23, 1981, at a total cost of \$8,910,000, with an estimated first Federal Cost of \$6,230,000 and an estimated first non-Federal cost of \$2,680,000.	Public Law 99-662, 99th Congress, 2nd Session
Aug 17, 1999	Holds the total amount projected as the non-federal share as of September 30, 1996 in the Project Cooperation Agreement executed on that date; and 100% of the amount of any increases in the cost of the locally preferred plan over the cost estimated in the Project Cooperation Agreement.	Public Law 106-53 106th Congress, 1st Session
SALYERSVILLE, KENTUCKY		
Nov 17, 1986	Flood control measures to prevent a December 1978 flood recurrence in the vicinity of Salyersville, Kentucky at a total project cost of \$7,000,000 was authorized for design and construction in section 401(e)(1) of the Water Resource Development Act of 1986. With respect to the project, Congress has determined that the benefits exceed the cost of such flood control measures.	Public Law 99-662, 99th Congress, 2nd Session
Nov 5, 1990	Provided \$400,000 to construct the Salyersville, Kentucky cut-through as authorized by PL 99-662 401(e)(1) in accordance with the Special Project Report for Salyersville, Kentucky, concurred in by the Ohio River Division Engineer on or about July 26, 1989.	Public Law 101-514, 101st Congress, 2nd Session
Aug 17, 1991	Provided \$600,000 to continue construction of the Salyersville, Kentucky cut-through as authorized by PL 99-662 section 401(e)(1) in accordance with the Special Project Report for Salyersville, Kentucky, concurred in by the Ohio River Division Engineer on or about July 26, 1989.	Public Law 102-104, 102nd Congress, 1st Session
Sep 12, 1996	Additional \$3,000,000 to continue construction of the Salyersville, Kentucky cut-through.	H.D. 3816, 104th Congress, 2nd Session
FRANKFORT, SOUTH FRANKFORT, KENTUCKY		
Nov 28, 1990	Flood protection in accordance with Plan R-1 of the Louisville District Commander's Re-evaluation Report, dated June 1990 and a executed LCA no later than October 1991 was authorized in Section 102 of the Water Resources Development Act of 1990.	Public Law 101-640, 101st Congress, 2nd Session
POND CREEK, JEFFERSON COUNTY, KENTUCKY		
Sep 25, 1996	Provide \$10,993,000 to construct the Pond Creek, Jefferson County, Kentucky project for flood control in accordance with the Report of the Chief of Engineers dated June 28, 1994. The major components of the Recommended Plan include detention basin storage and channel enlargement, in addition to wetland restoration and recreation.	Public Law 104-303, 104th Congress, 2nd Session
DUCK CREEK, CINCINNATI, OHIO		
Sep 25, 1996	Provide \$11,960,000 to construct the Duck Creek, Cincinnati, Ohio flood damage reduction project in accordance with the Chief of Engineers Report dated June 24, 1994. The project consists of floodwalls/ levees and channel relocation.	Public Law 104-303, 104th Congress, 2nd Session
NEW HARMONY, INDIANA		
Sep 25, 1996	Provide \$2,100,000 for streambank erosion protection along the Wabash River at the town of New Harmony, Indiana.	Public Law 104-303, 104th Congress, 2nd Session

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 24-B

AUTHORIZING LEGISLATION

CONTINUED

Acts Work Authorized	Documents
Sep 12, 1996	<p>WHITE RIVER, INDIANAPOLIS CENTRAL WATERFRONT, INDIANA</p> <p>Provide \$7,000,000 for construction of recreation facilities and rehabilitation of existing flood protection features in downtown Indianapolis along the White River.</p> <p>H.D. 3816, 104th Congress, 2nd Session</p>
Aug 17, 1999	<p>Authorized to undertake the riverfront alterations described in the Central Indianapolis Waterfront Concept Plan, dtd Feb 1994 for the Canal Development(Upper Canal feature) and the Beveridge Paper feature, at a total cost not to exceed \$25,000,000 of which \$12,500,00 is the estimated Federal cost and \$12,500,000 is the estimated non-federal cost.</p> <p>Public Law 106-53 106th Congress, 1st Session</p>
Aug 17, 1999	<p>BEARGRASS CREEK, KENTUCKY</p> <p>The project for flood control, Beargrass Creek, Kentucky: Report of the Chief of Engineers dtd May 12, 1998 at a total cost of \$11,171,300 with an estimated Federal cost of \$7,261,500 and an estimated non-federal cost of \$3,909,800.</p> <p>Public Law 106-53, 106th Congress, 1st Session</p>

¹ Deficiency act.

² Authorization for Nolin River and Bear Creek revoked by Act of Sep. 3, 1954

³ Permanent Appropriations Repeal Act.

TABLE 24-C

OTHER AUTHORIZED NAVIGATION PROJECTS
(See Section 6)

Name of Project	Status	For Last Full Report See Annual Report	Cost to Sep 30, 1998	
			Construction	Operation and Maintenance
Licking River	Completed	1901	\$ 13,045	\$ 139,108
Rough River, KY	Completed	1951	105,500	101,196
Tradewater River, KY	Completed	1858	18,568	33,331
White River, IN	Completed	1909	119,312	0

TABLE 24-E

OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project and Status ¹	For Last	Cost to Sep 30, 2001	
	Full Report See Annual Report	Construction	Operation and Maintenance
Local Protection:			
Completed:			
Boone County, KY (Ohio River, Rabbit Hash)	1977	\$ 392,443	-
Brevoort Levee, IN (Wabash River)	1954	1,240,299	-
Brookport, IL	1958	597,493	-
Cannelton, IN	1959	2,068,391	-
Canoe Creek, Henderson, KY ²	-	1,206,852	-
Chaplin River, Perryville, KY ²	-	832,700	-
Cincinnati, OH	1957	10,150,935	-
Covington, KY	1965	7,862,937	-
Dayton, KY	1987	13,177,345	-
Delphi, IN (Wabash River)	1953	144,563	-
England Pond Levee, IL (Wabash River)	1972	734,498	-
English, IN (Little Blue River) ²	1965	372,353	-
Evansville, IN	1997	43,906,502	-
Frankfort, KY (North Frankfort) (Kentucky River) ^{3 8}	1979	2,960,970	-
Frankfort, South Frankfort, KY	1998	11,164,720	-
Gill Township Levee, IN (Wabash River)	1948	561,200	-
Golconda, IL	1960	565,333	-
Grassy Creek, Jackson County, IN (Muscatatuck River) ²	1953	70,304	-
Harrisburg, IL	1959	870,015	-
Hawesville, KY	1955	969,318	-
Indianapolis, IN (Fall Creek Section) (White River)	1953	1,788,840	-
Indian Creek, Corydon, IN ²	1964	300,143	-
Jackson, KY (Kentucky River)	1957	130,952	-
Jeffersonville-Clarksville, IN	1959 & 1996	4,836,361	-
Lawrenceburg, IN	1953	2,473,414	-
Lebanon Junction, KY (Salt River) ²	1967	130,417	-
Levee Unit No. 5, Wabash River, IN	1987	7,517,464	-
Levee Unit No. 8, White River, IN	1952	700,534	-
Louisville, KY ⁴	1975	26,721,438	-
Lyford Levee Unit, IN (Wabash River)	1944	267,391	-
Mason J. Niblack Levee, IN (Wabash River) ⁵	1987	4,337,617	-
Mill Creek, Jefferson County, KY ²	1973	292,710	-
Mount Carmel, IL (Wabash River)	1972	1,980,675	-
Muncie, IN (White River)	1956	887,835	-
Neon-Fleming, KY (Kentucky River)	1963	86,532	-
New Albany, IN	1957	5,375,471	-
New Harmony Bridge, IL & IN (Wabash River) ^{2 7}	1959	297,624	-
Newburgh, IN (Ohio River) ⁶	1974	52,061	-
Newport, KY	1959	7,512,987	-
Paducah, KY	1959	4,761,551	-
Panther Creek, KY (Green River) ²	1970	254,031	-
Portland, IN (Salamonie River) ²	1962	237,657	-
Reevesville, IL (Cache River)	1954	600,300	-
Rochester & McCleary's Bluff Levee, IL (Wabash River)	1972	1,079,236	-
Rosiclaire, IL	1954	622,544	-
Saline River & Tributaries, IL	1981	7,826,219	-
Shawneetown, IL ⁷	-	91,000	-
Sturgis, KY	1972	1,826,778	-
Taylorsville, KY (Salt River)	1952	378,050	-
Tell City, IN	1956	932,229	-
Terre Haute (Conover Levee), IN (Wabash River) ⁷	1965	14,913	-
Town Creek, Harrodsburg, KY ²	1967	56,505	-
Triplett Creek, Morehead, KY (Licking River) ²	1972	893,094	-

**TABLE 24-E
CONTINUED****OTHER AUTHORIZED FLOOD CONTROL PROJECTS**

Project and Status¹	For Last Full Report See Annual Report	Cost to Sep 30, 2001	
		Construction	Operation and Maintenance
Uniontown, KY	1956	1,070,926	-
Vincennes, IN (Wabash River) ⁷	1964	3,308,941	-
West Terre Haute, IN (Wabash River)	1977	1,095,704	-
Whitewater River, Hagerstown, IN ²	-	641,398	-
Active:			
Greenfield Bayou, IN (Wabash River)	-	157,935	-
Indianapolis, IN (Warfleigh Section) (White River)	1976	153,410	-
Louisville, KY ⁹	-	415,000	-
Miami River Basin, Pleasant Run, Vicinity Fairfield, OH ⁹ (Great Miami River)	-	514,964	-
West Fork Mill Creek, OH (Winton Road) ⁹	-	477,649	-
Fairfield, OH	-	-	-
Inactive:			
Blue River, Salem, IN	-	15,000	-
Cache River, Upper Basin, Ill	-	44,000	-
Columbus, IN	-	283,000	-
Gallatin County, IL Stmbk	-	-	-
Hazard, KY	-	-	-
Island Levee, IN (Wabash River)	-	355,963	-
Kentucky River National Recreation Area	-	-	-
Licking River, KY	-	-	-
Mount Vernon, IN	-	30,000	-
Southwest Ohio Urban Waterfront Development	-	-	-
Vincennes, IL (Wabash River)	1964	-	-
Wabash River, York Township, Clark County, IL	-	-	-
West Fork Drakes Creek, TN & KY	-	58,000	-
West Point, KY	-	4,490	-
Whitewater River & Tributaries, IN & OH	-	112,000	-
Reservoirs:			
Active:			
Camp Ground Lake, KY (Salt River)	1983	235,615	-
Taylorsville, Lake, Floyd's Fork	-	-	-
Inactive:			
Big Pine Lake, IN (Wabash River)	1977	1,270,590	-
Big Walnut Lake, IN (Wabash River)	1980	1,009,188	-
Booneville Lake, KY (Kentucky River)	1976	1,038,595	-
Eagle Creek Lake, KY	1975	702,471	-
Lafayette Lake, IN (Wabash River)	1977	1,200,920	-
Mining City Lake, KY (Green River)	-	350,474	-
Red River Lake, KY (Kentucky River)	1976	1,794,308	-

¹ All projects are on Ohio River unless otherwise noted.² Authorized by the Chief of Engineers under Section 205, 1984 Flood Control Act, as amended.³ Cost includes \$161,098 cash contribution consisting of \$105,118 from the City of Frankfort, KY and \$55,980 from the Commonwealth of Kentucky.⁴ Cost includes \$1,716,301 cash contributions from the City of Louisville, KY.⁵ Cost shown are for levee and pump plants.⁶ The Water Resources Development Act of 1974 modified the Newburgh Locks & Dam project to include the bank protection works at Newburgh Locks & Dam project to include the bank protection works at Newburgh, IN.⁷ Partially completed to form a useful unit. Remaining portions of project inactive.⁸ Partially completed to form a useful unit. Remaining portions of project are active and inactive.⁹ Advance Engineering and Design funded with General Investigations Appropriation.

TABLE 24-G

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Flood Control - Local Protection:				
Adams Levee, IN (Wabash River)	-	1978	\$ -	-
Alton, IN	-	1977	-	-
Anderson, IN (White River)	1940	1986	5,724	-
Aurora, IN	-	1977	35,420	-
Bellevue, KY	-	1977	19,023	-
Bonpas Creek, IL (Wabash River)	-	1981	-	-
Bromley, KY	-	1977	-	-
California (Cincinnati), OH	-	1977	16,465	-
Carrollton, KY	-	1977	9,713	-
Caseyville, KY	-	1986	-	-
Cave-in-Rock, IL	-	1977	-	-
Cincinnati, OH (Unit 2)	-	1977	-	-
Cincinnati, OH (Unit 4)	-	1977	-	-
Cleves, OH	-	1977	6,343	-
Clinton, IN	-	1977	6,848	-
Cloverport, KY	-	1986	-	-
Concordia, KY	-	1986	-	-
Deer Creek, Prairie Levee, IN	-	1977	-	-
Derby, IN	-	1977	-	-
Elizabethtown, IL	-	1977	-	-
Evansville, Howell II	-	1992	-	-
Falmouth Lake	-	1998	944,386	-
Fletcher & Sunshine Gardens Levee, IN	-	1977	3,361	-
Frankfort, KY (Benson Creek) (Kentucky River)	1979	1992	-	-
Grandview, IN	-	1977	8,497	-
Honey Creek Levee, IN	-	1977	-	-
Leavenworth, IN	-	1977	-	-
Levee Unit 1, Eel River, IN	-	1977	-	-
Levee Unit 2, Eel River, IN	-	1977	-	-
Levee Unit 2, East Fork White River, IN	-	1977	-	-
Levee Unit 3, East Fork White River, IN	1938	1977	275	-
Levee Unit 1, IL (Wabash River)	1973	1986	60,000	-
Levee Unit 1, Little Wabash River, IL	-	1977	-	-
Levee Unit 2, Little Wabash River, IL	-	1977	-	-
Levee Unit 2, Wabash River, IL	-	1977	-	-
Levee Units 3 and 4, Wabash River, IL	1938	1977	216	-
Levee Unit 6, Wabash River, IL	-	1977	9,922	-
Levee Unit 17, Wabash River Basin, IN	-	1977	-	-
Levee Unit 1, White River, IN	-	1977	-	-
Levee Unit 7, White River, IN	-	1977	-	-
Levee Unit 9, White River, IN	-	1977	-	-
Levee Unit 10, White River, IN	-	1977	-	-
Lewisport, KY	-	1990	-	-
Louisville, KY (Partial)	-	1986	-	-
Louisville Lake	-	1998	2,355,395	-
Ludlow, KY	-	1977	14,503	-
Madison, IN	-	1977	-	-
Mauckport, IN	-	1977	-	-
Marion, IN (Wabash River)	1979	1986	209,975	-
McGinnis Levee, IN	1950	1977	71,049	-
Metropolis, IL	-	1986	10,575	-

TABLE 24-G
CONTINUED

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Contributed Funds Expended	Funds Expended
Flood Control - Local Protection (Cont'd.)				
Milton, KY	-	1977	-	-
Moscow, OH	-	1977	-	-
New Amsterdam, IN	-	1977	-	-
New Harmony, IN	-	1977	-	-
New Richmond, OH	-	1977	7,104	-
Newport -Wilder, KY	-	1990	-	-
Orleans, IN	1972	1977	13,158	-
Owensboro, KY	-	1990	-	-
Patriot, IN	-	1977	-	-
Prestonville, KY	-	1977	-	-
Raccoon Creek Levee, IN	-	1977	-	-
Rising Sun, IN	-	1977	-	-
Rockport, IN	-	1977	-	-
Rome, IN	-	1977	-	-
Russell and Allison, IL	-	1992	52,088	-
Shawneetown, IL	-	1986	25,367	-
Shoals, IN (East Fork White River)	1938	1977	-	-
Shufflebarger Levee, IN	1950	1977	64,487	-
Smithland, KY	-	1992	-	-
Sugar Creek Levee, IN	1961	1977	28,061	-
Terre Haute, IN	-	1977	-	-
Tolu, KY	-	1986	-	-
Tri Pond Levee, IL	1972	1977	65,510	-
Troy, IN	-	1977	-	-
Utica, IN	-	1978	-	-
Vevay, IN	-	1977	-	-
Vincennes, IN (Partial)	1964	1986	-	-
Westport, KY	-	1977	-	-
Wilders, KY	-	1990	-	-
Flood Control - Reservoirs				
Big Blue Lake, IN	1980	1981	1,079,867	-
Clifty Creek Lake, IN	1979	1981	1,016,358	-
Downeyville Lake, IN (Wabash River)	-	1992	-	-
Helm Lake, IL	1976	1981	41,616	-
Lincoln Lake, IL	1979	1981	1,331,844	-
Metomora Lake, IN	-	1977	-	-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001
NAVIGATION LOCKS AND DAMS
PRINCIPAL FEATURES - GREEN & BARREN RIVERS
AND KENTUCKY RIVER NAVIGATION SYSTEMS

TABLE 24-H

Lock and Dam	Miles above Mouth of River	Distance from Nearest Town	Width of Chamber	Lock Dimensions		Upper Normal Pool Elevation (feet msl)	Depth of Miter Sills		Character of Foundation	Percent Complete	Year Opened to Navigation	Cost of Lock and Dam	
				Greatest Length Available			Upper	Lower				Lock	Dam
				For Full Width (feet)	Lift (feet)								
CONSTRUCTION OF LOCKS AND DAMS, OHIO RIVER- For report on this improvement see this heading under Ohio River.													
GREEN AND BARREN RIVERS, KY (See Section 3 of T ext)													
Green River													
New	1	9.1	Spottsville, KY	84.0	600.0	11.8	349.1	12.1	11.3	Shale and Coal	100	1956 ²	\$5,101,978 ³
New	2	63.1	0.3 miles below Calhoun, KY	84.0	600.0	14.3	363.4	15.0	11.7	Shale	100	1956 ⁴	4,799,271 ⁵
	3	108.5	0.3 miles below Rochester, KY	35.8	137.5	17.0	380.4	7.3	5.6	Rock	100	1836 ⁶	121,377
	4	149.0	Woodbury, KY	35.8	138.0	16.4	396.8	7.1	6.5	Rock	100	1839 ⁷	125,718
	5	168.1	0.3 miles below Glenmore, KY	56.0	360.0	15.2	412.0 ⁸	12.0	9.3	Piles and Rock	100	1934 ⁹	1,020,868 ¹⁰
	6	181.7	2.8 miles above Brownsville, KY	36.0	145.0	9.2	421.1	8.0	8.8	Gravel	100	1905 ⁹	168,415
Barren River													
	1	15.0 ¹¹	0.3 miles above Greencastle, KY	56.0	360.0	15.2	412.0	12.0	9.3	Gravel	100	1841 ¹²	871,565 ¹³
KENTUCKY RIVER, KY (See Section 4 of Text)													
Kentucky River													
	1	4.0	3.8 miles above Carrollton, KY	38.0	145.0	8.2 ¹⁴	430.0	8.2	4.8	Rock and Clay	100	1839 ¹⁵	-
	2	31.0	Lockport, KY	38.0	145.0	13.9	443.9	7.6	6.1	Rock	100	1839 ¹⁵	-
	3	42.0	Gest, KY	38.0	145.0	13.2	457.1	8.6	6.5	Rock	100	1844 ¹⁵	1,350,385 ¹⁶
	4	65.0	1.0 mile below Frankfort, KY	38.0	145.0	13.2	470.3	6.4	6.3	Rock	100	1844 ¹⁵	-
	5	82.2	2.8 miles below Tyrone, KY	38.0	145.0	15.0	485.3	10.0	6.4	Rock	100	1844 ¹⁵ ¹⁷	-
	6	96.2	21.6 miles below High Bridge, KY	52.0	147.0	14.0	499.3	9.4	6.4	Rock and Piles	100	1894 ¹⁷	314,847
	7	117.0	0.8 mile below High Bridge, KY	52.0	147.0	15.3	514.6	9.1	6.8	Rock	100	1897 ¹⁷	290,788
	8	139.9	4.7 miles above Camp Nelson, KY	52.0	146.0	18.7	533.6	10.6	6.0	Rock	100	1900 ¹⁷	275,463
	9	157.5	Valley View, KY	52.0	148.0	17.3	550.6	10.0	6.6	Rock	100	1907 ¹⁷	237,646
	10	176.4	1.0 mile below Ford, KY	52.0	148.0	17.0	567.6	9.0	6.0	Rock	100	1907 ¹⁷	221,500
	11	201.0	17.2 miles below Irvine, KY	52.0	148.0	18.0	585.6	10.0	6.0	Rock	100	1906 ¹⁷	296,593
	12	220.0	Ravenna, KY	52.0	148.0	17.0	602.6	9.6	6.0	Rock	100	1910 ¹⁷	425,693
	13	239.9	2.2 miles below Willow, KY	52.0	148.0	18.0	620.6	9.6	6.0	Rock	100	1915 ¹⁷	461,476
	14	249.0	Heidelberg, KY	52.0	148.0	17.0	63.6	8.6	6.0	Rock	100	1971 ¹⁷	392,902

1 At normal pool Dam 48, Ohio River, Elev. 337.3, Green River datum (Elev. 338.0 Ohio River datum)

2 New Lock 1 placed in operation May 25, 1956, old Dam 1, completed 1835-40, replaced with new cellular concrete masonry dam constructed 1970-71 with O&M funds at cost of \$822,000.

3 Does not include \$179,110 cost of old Lock and Dam 1.

4 New Lock and Dam 2, placed in operation June 18, 1956.

5 Does not include \$295,696 cost of old Lock and Dam 2.

6 Operation discontinued September 30, 1981.

7 Breaching of dam on May 24, 1965, stopped through traffic to Bowling Green, KY.

8 With moveable A-frame crest 3 feet high.

9 Operation discontinued August 1, 1951.

10 Does not include \$179,434 cost of old Lock and Dam 5. Transferred to State, December 1996.

11 Distance from mouth of Green River is 164.5 miles. Lock closed to navigation as the result of loss of pool at Green River Lock and Dam 4 on May 24, 1965.

12 Piles in old gravel dam completed in 1934.

13 Includes \$729,269 for new large lock completed in 1934.

14 At normal pool McAlpine Dam, Ohio River Elev. 421.8 Kentucky River datum (Elev. 420 Ohio River datum).

15 Reconstruction completed by United States in 1882.

16 Built by State of Kentucky. Cost given is for repairs by United States to Locks and Dams 1 through 5. Original construction costs to State were: L&D 1, \$220,300; L&D 2, \$151,983; L&D 3 \$135,857; L&D 4, \$131,607; and L&D 5, \$137,436.

17 Lock was closed to traffic and placed in caretaker status in September 1982.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 24-I

**OHIO RIVER BASIN
TOTAL COST OF BASIN PLAN
(See Section 38 of Text)**

LOCAL PROTECTION		Estimated Cost		
Project and Status ¹	Type of Construction	Federal	Non-Federal ²	Total
Completed:				
Barnett Creek, KY (Rough River) ^{3 4}	Channel improvement	\$ 144,000	\$ 18,000	\$ 162,000
Boone County, KY	Bank Protection	392,443	83,000	475,443
Brookport, IL ^{5 6}	Wall and levee	597,493	8,500	605,993
Cannelton, IN ^{5 7}	Wall and levee	2,068,391	29,105	2,097,496
Cincinnati, OH ^{5 8}	Wall and barrier dam	10,150,935	1,309,146	11,460,081
Covington, KY ^{5 9}	Wall and levee	7,862,937	1,051,102	8,914,039
Dayton, KY	Wall and levee	13,117,345	2,013,000	15,130,345
Delphi, IN (Wabash River) ^{5 10}	Levee	144,563	17,164	161,727
England Pond Levee, IL (Wabash River) ¹¹	Levee	734,498	107,000	841,498
Evansville, IN ⁴	Wall and levee	43,906,502	5,500,000	49,406,502
Frankfort, KY, North Frankfort (Kentucky River) ⁵	Wall and levee	2,960,970	272,100	3,233,070
Frankfort, KY (Kentucky River) South Frankfort ⁵	Wall	8,373,540	2,791,180	11,164,720 ³⁶
Golconda, IL ^{5 12}	Wall and levee	565,333	10,900	576,233
Harrisburg, IL ^{5 10}	Wall and levee	870,015	20,000	890,015
Hawesville, KY ^{5 13}	Levee	969,318	42,593	1,011,911
Jackson, KY (Kentucky River) ^{5 8}	Cutoff channel	130,952	3,000	133,952
Jeffersonville-Clarksville, IN ⁷	Wall and levee	4,226,361	590,888	4,817,249
Lawrenceburg, IN ⁵	Wall and levee	2,473,689	284,725	2,758,414
Louisville, KY ^{5 14}	Wall and levee	25,005,137	1,716,301	26,721,438
Mason J. Niblack Levee, IN (Wabash River) ^{4 5}	Levee and pump plants	4,337,617	109,200	4,446,817
New Albany, IN ^{5 8}	Wall and levee	5,375,471	740,000	6,115,471
New Harmony Bridge, IL & IN (Wabash River) ^{5 7}	Bank Protection	297,624		297,624
Newport, KY ^{5 7}	Wall and levee	7,512,987	298,506	7,811,493
Paducah, KY ^{5 7}	Wall and levee	4,761,551	232,000	4,993,551
Perryville, KY, Chapin River	Channel Improvement	823,700	11,000	834,700
Reevesville, IL (Cache River) ^{5 15}	Levee	600,300	40,000	640,300
Rochester and McCleary's Bluff Levee, IL (Wabash River) ¹¹	Levee	1,079,236	100,000	1,179,236
Rough River, KY ^{3 4}	Channel improvement	654,000	5,000	659,000
Southwest Jefferson County	Wall and Levee	60,077,183	9,917,000	69,994,183
Sturgis, KY (Tradewater River) ¹¹	Levee	1,826,778	93,000	1,919,778
Taylorsville, KY (Salt River) ^{5 16}	Levee	378,050	63,309	441,359
Tell City, IN ^{5 14}	Wall and levee	932,229	32,707	964,936
Uniontown, KY	Levee	1,070,926	72,153	1,143,079
Vincennes, IN ^{5 17} (Wabash River)(completed portion) ⁵	Wall and levee	3,308,941	285,000	3,593,941
West Terre Haute, IN (Wabash River)	Levee	1,095,704	150,000	1,245,704
Active:				
Salyersville, KY	Channel Improvement	9,348,600	981,400	10,330,000
Inactive:				
Hazard, KY	Channel Improvement	-	-	-

LOUISVILLE, KY DISTRICT
OHIO RIVER BASIN
TOTAL COST OF BASIN PLAN
(See Section 38 of Text)

TABLE 24-I
CONTINUED

LOCAL PROTECTION		Estimated Cost		
Project and Status ¹	Type of Construction	Federal	Non-Federal ²	Total
Deauthorized:				
Adams Levee, IN (Wabash River) ³²	Levee	\$ 292,000	\$ 14,000	\$ 306,000 ²⁷
Alton, IN ³⁰	Levee	255,000	40,000	295,000
Aurora, IN ³¹	Wall and levee	4,300,000	1,190,000	5,490,000
Bellevue, KY ³⁰	Wall and levee	1,570,000	400,000	1,970,000
Bonpas Creek, IL (Wabash River) ^{5 33}	Channel Improvement	1,080,000	630,000	1,710,000 ²⁸
Bromley, KY ³⁰	Wall and levee	1,250,000	925,000	2,175,000
California (Cincinnati), OH ³¹	Wall and levee	1,750,000	720,000	2,470,000
Carrollton, KY ³⁰	Wall and levee	2,220,000	97,000	2,317,000
Caseyville, KY ^{5 34}	Levee	396,000	35,000	431,000
Cave-in-Rock, IL ³⁰	Levee	661,000	125,000	786,000
Cincinnati, OH (Unit 2) ³⁰	Wall and levee	16,800,000	2,900,000	19,700,000
Cincinnati, OH (Unit 4) ³⁰	Wall	14,900,000	621,000	15,521,000
Cleves, OH ³⁰	Levee	1,240,000	67,000	1,307,000
Clinton, IN (Wabash River) ³⁰	Levee	77,000	9,000	86,000
Cloverport, KY ^{5 34}	Wall and levee	728,000	193,000	921,000
Concordia, KY ^{5 34}	Levee	590,000	55,000	645,000
Deer Creek Prairie Levee, IN (Wabash River) ³⁰	Levee	213,000	10,000	223,000 ²⁴
Derby, IN ³⁰	Wall and levee	553,000	67,000	620,000
Elizabethtown, IL ³⁰	Wall and levee	559,000	153,000	712,000
Fletcher and Sunshine Gardens Levee, IN (Wabash River) ³⁰	Levee	548,000	26,000	574,000 ²⁴
Frankfort, KY (Kentucky River) Benson Creek ⁵	Wall and Levee	3,340,000	1,150,000	4,490,000 ²²
Grandview, IN ³⁰	Levee	580,000	133,000	713,000
Greenfield Bayou Levee, IN (Wabash River) ^{5 35}	Levee	4,600,000	1,087,000	5,687,000 ²³
Honey Creek Levee, IN ³⁰	Levee	653,000	32,000	685,000
Island Levee, IN (Wabash River) ^{5 35}	Levee	4,630,000	528,000	5,158,000 ²³
Leavenworth, IN ³⁰	Wall and levee	1,470,000	266,000	1,736,000
Levee Unit 1, Eel River, IN ³⁰	Levee	204,000	40,000	244,000
Levee Unit 1, Little Wabash River, IL ³⁰	Levee	2,850,000	164,000	3,014,000 ²⁷
Levee Unit 1, White River, IN ³⁰	Levee	2,180,000	116,000	2,296,000 ²⁷
Levee Unit 17, IN ³⁰	Levee	1,580,000	118,000	1,698,000 ²⁸
Levee Unit 2, Eel River, IN ³⁰	Levee	2,090,000	715,000	2,805,000
Levee Unit 2, Little Wabash River, IL ³⁰	Levee	3,410,000	136,000	3,546,000 ²⁸
Levee Unit 2, White River, IN ³⁰	Levee	724,000	73,000	797,000 ²⁷
Levee Unit 6, Wabash River, IL ³⁰	Levee	1,160,000	56,000	1,216,000
Levee Unit 7, White River, IN ³⁰	Levee	1,490,000	88,000	1,578,000 ²⁷
Lewisport, KY ^{5 35}	Wall and levee	610,000	243,000	853,000 ²⁴
Ludlow, KY ³⁰	Wall and levee	2,540,000	745,000	3,285,000
Madison, IN ³⁰	Levee	3,820,000	360,000	4,180,000
Mauckport, IN ³⁰	Levee	506,000	105,000	611,000
McGinnis Levee, IN (Wabash River) ³⁰	Levee	1,820,000	104,000	1,924,000
Metropolis, IL ^{5 34}	Wall and levee	3,070,000	431,000	3,501,000
Milton, KY ³⁰	Wall	2,480,000	41,000	2,521,000
Moscow, OH ³⁰	Levee	1,170,000	372,000	1,542,000
New Amsterdam, IN ³⁰	Levee	476,000	13,000	489,000
New Harmony Bridge, IL & IN (Wabash River) ³⁷	Bank Protection	664,376	99,000	763,376 ²⁵
New Harmony, IN (Wabash River) ³⁰	Levee	616,000	25,000	641,000
Wilder, KY ³⁵	Wall and levee	10,800,000	959,000	11,759,000 ²⁶

¹ All projects are on an Ohio River unless otherwise noted.

² Latest cost estimate revision 1954 unless otherwise noted.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

³ Part of Rough River Reservoir and Channel Improvement Project, KY.

⁴ Details of this project are in individual report.

⁵ Also see "Other authorized flood control projects."

⁶ See Annual Report for 1958 for details.

⁷ See Annual Report for 1959 for details.

⁸ See Annual Report for 1957 for details.

⁹ See Annual Report for 1965 for details.

¹⁰ See Annual Report for 1953 for details.

¹¹ See Annual Report for 1972 for details.

¹² See Annual Report for 1960 for details.

¹³ See Annual Report for 1955 for details.

¹⁴ See Annual Report for 1962 for details.

¹⁵ Substitute project for Belknap, Karnak, and Ullin, IL, complete. See Annual Report for 1954 for details.

¹⁶ See Annual Report for 1952 for details.

¹⁷ See Annual Report for 1956 for details.

¹⁸ Latest cost estimate revision 1988.

¹⁹ Latest cost estimate revision 1986.

²⁰ Latest cost estimate revision 1984.

²¹ Latest cost estimate revision 1983.

²² Latest cost estimate revision 1976.

²³ Latest cost estimate revision 1978.

²⁴ Latest cost estimate revision 1960.

²⁵ Latest cost estimate revision 1971.

²⁶ Latest cost estimate revision 1977.

²⁷ Latest cost estimate revision 1961.

²⁸ Latest cost estimate revision 1973.

²⁹ Latest cost estimate revision 1989.

³⁰ Deauthorized Aug 05, 1977 under Section 12, Water Resources Development Act of 1971 (P.L. 93-251).

³¹ Deauthorized Nov 06, 1977 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

³² Deauthorized Oct 03, 1978 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

³³ Deauthorized May 06, 1981 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

³⁴ Deauthorized Nov 17, 1986 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

³⁵ Deauthorized Jan 01, 1990 under Section 1001 (b)(1), Water Resources Development Act of 1986 (P.L. 99-662).

³⁷ Deauthorized Jul 19, 1992.

LOUISVILLE, KY DISTRICT
OHIO RIVER BASIN
TOTAL COST OF BASIN PLAN
(See Section 38 of Text)

TABLE 24-I
CONTINUED

RESERVOIRS			Estimated Cost¹		
Tributary Basin Reservoirs	Status	Stream	Federal	Non-Federal	Total
Great Miami River: Brookville Lake, IN ²	Complete	East Fork of Whitewater River	\$ 37,905,073	\$ 7,497,492 ³	\$ 45,402,565
Metamora Lake, IN	Deauthorized	West Fork of Whitewater River	35,300,000		35,300,000 ⁴
Green River:					
Barren River Lake, KY ²	Complete	Barren River	27,371,299	108,418 ⁵	27,479,717
Green River Lake, KY ²	Complete	Green River	33,238,597	223,733 ¹³	33,462,330
Mining City Lake, KY	Inactive	Green River	69,100,000		69,100,000 ⁴
Nolin Lake, KY ²	Complete	Nolin River	17,193,278		17,193,278
Rough River Kentucky ²	Complete	Rough River	10,620,389	22,612	10,643,001
Kentucky River:					
Booneville Lake, KY	Inactive	South Fork of Kentucky River	60,700,000		60,700,000 ⁸
Buckhorn Lake, KY ²	Complete	Middle Fork of Kentucky River	11,766,206		11,766,206
Carr Fork Lake, KY ²	Complete	North Fork of Kentucky River	50,854,826		50,854,826
Eagle Creek Lake, KY	Inactive	Eagle Creek	27,800,000	-	27,800,000 ¹⁴
Red River Lake, KY	Inactive	Red River	38,551,692	1,794,308	40,346,000
Licking River:					
Cave Run Lake, KY ²	Complete	Licking River	81,162,282		81,162,282 ⁷
Falmouth Lake, KY	Deauthorized	Licking River	125,000,000		125,000,000 ⁸
Little Miami River:					
Caesar Creek Lake, OH ²	Complete	Caesar Creek	62,893,882	5,037,000 ⁹	67,930,882
William H. Harsha Lake, OH ²	Complete	East Fork of Little Miami River	52,023,157	3,485,840 ⁹	55,508,997
Mill Creek:					
West Fork of Mill Creek Lake, OH ²	Complete	West Fork of Mill Creek	3,622,302	1,100,161 ¹⁰	4,722,463
Wabash River:					
Cagles Mill Lake, IN ²	Complete	Mill Creek	4,256,903	113,094 ⁵	4,369,997
Cecil M. Harden Lake, IN ²	Complete	Raccoon Creek	6,633,812	353,995 ⁵	6,987,807
Monroe Lake, IN ²	Complete	Salt Creek	7,902,827	8,667,947 ¹¹	16,570,774
Patoka Lake, IN ²	Complete	Patoka River	53,095,790	20,568,369	73,664,159

¹ Latest cost estimate revision 1989 unless otherwise noted.

² Details of this project given in individual report.

³ Cash contributions for water supply storage.

⁴ Latest cost estimate revision 1954.

⁵ For Code 713 recreation development.

⁶ Latest cost estimate revision 1975.

⁷ Includes \$6,900,000 United States Forest Service cost.

⁸ Latest cost estimate revision 1979.

⁹ Reimbursement for water supply storage.

¹⁰ Includes \$520,800 for non-Federal cost for sewer relocation and dam, \$50,000 for contributed funds in fulfillment

of project authorization, and \$529,361 for Code 713 recreation development.

¹¹ Includes \$7,797,604 cash contribution for storage for low-flow regulation and \$870,343 non-Federal contribution in kind for recreational facilities.

¹² Includes \$14,180,677 cash contribution for water supply storage, and \$6,387,692 for initial recreation development.

¹³ For \$183,732 Code 713 recreation development and \$40,001 contributed funds.

¹⁴ Latest cost estimate 1974

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 24-J

**WABASH RIVER BASIN
TOTAL COST OF BASIN PLAN
(FLOOD CONTROL)
(See Section 43 of Text)**

Project	Type of Construction or Stream	Status	Estimated Cost		
			Federal	Non-Federal	Total
LOCAL PROTECTION					
Marion, IN	Wall and Levee	Inactive	\$ 3,900,000	\$ 854,000	\$ 4,754,000 ²
RESERVOIRS					
Big Blue Lake, IN	Big Blue River	Deauthorized	87,200,000	53,836,000 ³	141,036,000 ⁴
Big Walnut Lake, IN	Big Walnut Creek	Inactive	81,800,000	45,069,000 ⁵	126,869,000 ⁴
Downeyville Lake, IN	Flatrock and Little Flatrock Rivers	Inactive	74,200,000	64,448,000 ⁶	138,648,000 ¹
Helm Lake, IN	Skillet Fork	Deauthorized	25,171,000	14,829,000 ⁷	40,000,000 ⁸
Louisville Lake, IL	Little Wabash River	Deauthorized	113,000,000	14,435,000 ⁹	127,435,000 ¹⁰

Latest cost revision 1984 unless otherwise noted.

² Latest cost estimate revision 1977.

³ Includes \$38,190,000 reimbursable by non-Federal interests for water supply and \$15,656,000 reimbursable for initial recreation facilities.

⁴ Latest cost estimate revision 1979.

⁵ Includes \$26,663,000 reimbursable by non-Federal interests for water supply and \$18,406,000 reimbursable for initial recreation facilities.

⁶ Includes \$53,084,000 reimbursable by non-Federal

interests for water supply, \$8,749,000 reimbursable for initial recreation facilities.

⁷ Includes \$12,696,000 reimbursable by non-Federal interests for water supply and \$2,133,000 reimbursable for initial recreation facilities.

⁸ Latest cost estimate revision 1975.

⁹ Includes \$8,402,000 reimbursable by non-Federal interests for water supply and \$6,033,000 reimbursable for initial recreation facilities.

¹⁰ Latest cost estimate revision 1982.

TABLE 24-K

**INSPECTION OF COMPLETED
FLOOD CONTROL PROJECTS
(See Section 46 of Text)**

Projects	Date of Inspection
Local Protection Projects	
Brevoort Levee, IN	Jul 2001
Brookport, IL	Dec 2000
Cache River Levee, IL	Aug 2001
Cannelton, IN	Aug 2001
Cincinnati, OH	Sep 2001
Covington, KY	Sep 2001
Dayton, KY	Sep 2001
Delphi, IN	Sep 2001
England Pond Levee, IL	Nov 2000
Evansville, IN	Nov 2000
Frankfort, KY, North Frankfort	Sep 2001
Gill Township Levee, IN	Aug 2001
Golconda, IL	Aug 2001
Harrisburg, IL	Apr 2001
Hagerstown, IN	Jul 2001
Hawesville, KY	Sep 2001
Indianapolis, IN	Jul 2001
Jeffersonville-Clarksville, IN	Aug 2001
Lawrenceburg, IN	Dec 2000
Lebanon Junction, KY	Sep 2001

LOUISVILLE, KY DISTRICT

TABLE 24-K
CONTINUED

**INSPECTION OF COMPLETED
FLOOD CONTROL PROJECTS**

(See Section 46 of Text)

Projects	Date of Inspection
Levee Unit No. 5, Wabash River, IN	Jul 2001
Levee Unit No. 8, Wabash River, IN	Nov 2000
Louisville, KY	Jul 2001
Lyford Levee, IN	Aug 2001
Mason J. Niblack Levee, IN	Aug 2001
Mount Carmel, IL	Jul 2001
Muncie, IN	Sep 2001
New Albany, IN	Aug 2001
Newport, KY	Sep 2001
Paducah, KY	Dec 2000
Perryville, KY	Sep 2001
Reevesville, IL	Dec 2000
Rochester-McClearys Bluff Levee, IL	Jul 2001
Rosiclare, IL	Apr 2001
Shawneetown, IL	Apr 2001
Southwestern Jefferson County, KY	Jul 2001
Sturgis, KY	Jul 2001
Taylorsville, KY	Mar 2001
Tell City, IN	Aug 2001
Terre Haute (Conover Levee), IN	Aug 2001
Uniontown, KY	Jul 2001
Vincennes, IN	Jul 2001
West Terre Haute, IN	Aug 2001
Channel Improvements	
Canoe Creek, Henderson, KY	Aug 1998
Cypress Creek, McLean County, KY	Sep 1998
Eel River, Brazil Waterworks, IN	Oct 1999
English, IN (Little Blue River)	Jun 1994
Grassy Creek, Jackson County, IN	Sep 1995
Harrodsburg, KY (Town Creek)	Sep 1998
Indian Creek, Corydon, IN	Aug 1998
Jackson, KY (North Fork Kentucky River)	Sep 1998
Lancassange Creek, Clark Co, IN	Jul 1999
Lick Creek, Hartford City (Blackford County), IN	Nov 1999
Mill Creek, Jefferson County, KY	Jul 1988
Muscatatuck River, Crothersville, IN	Jul 1990
Neon-Fleming, KY (North Fork Kentucky River)	Sep 1998
Nicholasville (Town Fork) Vicinity, KY	Sep 1995
Panther Creek, Curdsville, KY	Sep 1998
Plum Creek, Spencer County, KY	Mar 1993
Portland, IN (Salamonie River)	Nov 1999
Rough River, Hartford, Ohio County, KY	Nov 1999
Salamonie River, Wells County, IN	Nov 1999
Saline River and Tributaries, IL	Jun 1998
Tripplett Creek, Morehead, KY	Sep 1998
Troublesome Creek, Hindman, KY	Sep 1998
Wabash River, Adams County, IN	Nov 1999
Whitesburg, KY (North Fork Kentucky River)	Aug 1998
Bank Revetments	
Crooked Creek, City Garage, Madison, IN	Oct 1999
Crooked Creek, John Paul Park, Madison, IN	Oct 1999
East Fork White River, Brownstown, (Jackson County), IN	Jun 1993
Eighteen Mile Island, Oldham County, KY	Jun 1993

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 24-K
CONTINUED

**INSPECTION OF COMPLETED
FLOOD CONTROL PROJECTS**

(See Section 46 of Text)

Projects	Date of Inspection
Great Miami River, Ice Jam Flooding, Port Jefferson, OH	Nov 1999
Great Miami River, Sidney, OH	Aug 1995
Green River, Calhoun, KY (River Mile 63.6)	Sep 1995
Green River, Calhoun, KY (River Mile 63.4)	Sep 1998
Indian Creek, Burton Lane, Morgan County, IN	Oct 1999
Licking River, Butler, KY	Aug 1995
Lusk Creek, Golconda, IL	Aug 2001
Little Miami River, Indian Hill, OH	Nov 1999
Little Miami River, Milford, OH	Apr 1995
Nameless Creek, Warren County, IN	Jun 1995
Ohio River, Brandenburg, KY	Jun 1993
Ohio River, Cloverport, KY	Sep 1998
Ohio River, Daviess County, KY	Sep 1998
Ohio River, Fort Massac State Park, IL	Nov 1999
Ohio River, Hawesville, KY	Sep 1998
Ohio River, Lewisport, KY	Sep 1998
Ohio River, Madison, IN	Oct 1999
Ohio River, Moscow, OH	Jan 2000
Ohio River, Mount Vernon, IN	May 1995
Ohio River, Newburgh, IN	Aug 1998
Ohio River, Ohio Street, Evansville, IN	Nov 1999
Ohio River, Otter Creek Park, KY	Jun 1993
Ohio River, Owensboro, KY	Sep 1998
Ohio River, Owensboro Riverport Authority, KY	Feb 1995
Ohio River, Rabbit Hash, Boone County, KY	Nov 1999
Ohio River, Rockport/Rockport Landing, IN	Aug 1998
Ohio River, Sellersburg, IN	Sep 1986
Ohio River, SR 66, Cannelton, IN	Dec 1993
Ohio River, Troy, IN	Aug 2001
Ohio River, Upper River Road, Jefferson County, KY	Jul 1991
Ohio River, Vanderburg County, IN	Aug 1998
Patoka River, Jasper, IN	Oct 1993
Patoka River, Winslow, IN	Jul 1995
South Fork of Wildcat Creek, County Road 7 East, Tippecanoe County, IN	Apr 1995
Stoner Creek, North Middletown, KY	Jul 1994
Wabash River, near Merom, IN	Jun 1995
Wabash River, New Harmony, IN	Aug 1998
Wabash River, Terre Haute STP Outfall	Oct 1999
Wabash River, Vigo County, County Road 83 West	Oct 1999
Wabash River, Vigo County, Little Road	Oct 1999
White River, Morgan County, Blue Bluff Road, IN	Oct 1999
White River, Petersburg (Pike County), IN	Jul 1995
Whitewater River, Levee Road, near Brookville, IN	Apr 1995
Wastewater Treatment Plant, Great Miami River, Ross, OH	Apr 1995

LOUISVILLE, KY DISTRICT

TABLE 24-L

**FLOOD CONTROL WORK
UNDER SPECIAL AUTHORIZATION
(See Section 48 of Text)**

	Fiscal Year Cost		
	Federal	Non-Fed	Total
Environmental Restoration (Section 1135)			
Barren, KY RA ⁷	815	-	815
Caesar Creek Wetland/Prarie ⁶	587	-	587
Cane Ridge, IN RA ⁷	2,102	-	2,102
Coordination Accounting Fund ⁸	14,586	-	14,586
Falls of Ohio, Wetlands & Fishery ⁵	179,687	35,976	215,663
Green River Headwater ⁴	145,489	-	145,489
Hovey Lake, IN ²	56,143	-	56,143
Monroe Lake Wetland & Fish Spawning Areas ⁵	-893	893	0
Monroe Lake, IN RA ⁷	1,277	-	1,277
Mt. Etna/Mt. Hope Wetlands Salamonie Lake ³	15,309	-	15,309
Preliminary Restoration Plan ⁷	7,985	-	7,985
White River Muncie, IN ²	41,317	-	41,317
Flood Control (Section 205)			
Amberley Creek, Cincinnati, OH ²	23,769	52,004	75,772
Beech Fork, Bardstown, KY ⁵	13,815	84	13,898
Canoe Creek, Henderson, KY ²	26,324	-	26,324
City Dam, Brevoort Levee, IN ⁵	43,694	153	43,847
Coordination Account ⁸	21,211	-	21,211
Deshee River, Brevoort Levee, IN ⁵	68,461	6,399	74,860
Embarrass River, Lawrenceburg, IL ²	1,501	-	1,501
Feather Creek, Clinton, IN ³	64,067	-	64,067
Flatrock River, Rushville, IN ⁵	11	22,555	22,566
Hinkston Creek Mt. Sterling, KY ²	23,581	-	23,581
Knox County Kelso Creek, IN ²	32,233	-	32,233
Licking River Flood Warning System ³	62,334	-	62,334
Little Duck Creek, OH ²	118,270	-	118,270
N. Fork, KY River, Jackson, KY ⁴	8,142	-	8,142
N. Fork Elkhorn Creek, Georgetown, KY ²	200	-	200
North Fork Kentucky River Whitesburg ²	7,285	-	7,285
North Panther Creek, Daviess County, KY ²	20,109	-	20,109
Ohio & Cumberland Rivers, Smithland, KY ²	16,279	15,955	32,234
Ohio River, Lewisport, KY ²	3,338	-	3,338
Ohio River, Silver Grove, KY ²	35,733	-	35,733
Owl Creek, West Carrollton, OH ²	6,892	-	6,892
Pipe Creek, Alexandria, IN ³	60,525	-	60,525
Pleasant Creek, Greenwood, IN ²	48,718	-	48,718
Red River, Stanton, KY ²	3,115	-	3,115
Rolling Fork River, Lebanon Junction, KY ³	51,356	-	51,356
Sugar Creek, Bellbrook, OH ⁵	20,927	20	20,948
Town Branch, Nicholasville, KY ²	7,504	-	7,504
Vaughn's Branch, Lexington, KY ²	2,698	-	2,698
White River, Anderson, IN ³	64,092	8,905	72,996
Whitewater River, Connersville, IN ²	14,116	-	14,116
Wolf Run & Parkers Mill Trib, Lex. ²	6,442	-	6,442
Emergency Bank Protection (Section 14)			
Big Vermillion River, Eugene Covered Br. ¹	10,396	-	10,396
Cincinnati Water Works, OH ¹	0	-	0
Clear Creek Mapletown Utilities ¹	0	-	0
Columbia Township, OH ¹	0	-	0
Coordination Account ⁸	21,658	-	21,658
Copeland Low Water Bridge, Breathitt Co. ¹	0	-	0
Great Miami River, Cincinnati WTP, Fair ¹	-15,708	18,191	2,483
Green River Muhlenburg County, Park, KY ¹	0	-	0
Little Miami River Anderson ¹	33,195	-	33,195

TABLE 24-L
CONTINUED

FLOOD CONTROL WORK
UNDER SPECIAL AUTHORIZATION
(See Section 42 of Text)

	Fiscal Year Cost		
	Federal	Non-Fed	Total
Mill Creek, Rd 550W, Park Co. ¹	1,055	-	1,055
North Fork, Kentucky River, Vocational School ⁵	63,030	29,630	92,660
Ohio River Upper River Road, KY ¹	8,653	-	8,653
Ohio River, English Park, Owensboro, KY ¹	6,621	-	6,521
Ohio River, National Historic Site ¹	8,036	-	8,036
Ohio River, Perry County, IN ⁴	287,762	80,968	368,730
Rough River Hartford, KY ¹	24,601	-	24,601
Southern Ditch, Louisville, KY ¹	18,836	-	18,836
White River, Knox County, Hwy 358, KY ¹	0	-	0
Whitewater River, Memorial Road, Fayette ¹	-3,301	5,059	1,758
Snagging & Clearing (Section 208)			
Anderson River St. Meinrad, IN ¹	3,200	-	3,200
Rolling Fork River, Nelson & Larue Counties ¹	3,565	-	3,565
Section 208 Coordination Account ⁸	3,000	-	3,000
Aquatic Ecosystem Restoration (Section 206)			
Banta Tibbs Landfill RA ⁷	2,595	-	2,595
Beargrass Creek Louisville, KY Wetlands ⁷	815	-	815
Bloomington IN Wetlands RA ⁷	11,189	-	11,189
Chapman Lake, IN Wetlands RA ⁷	11,776	-	11,776
Clear Creek Strip Mine KY ¹	815	-	815
Coiltown Station Strip Mine KY ⁷	815	-	815
Colonial Tipple Strip Mine KY ¹	815	-	815
Coordination Account Fund ⁸	17,793	-	17,793
East Fork White River RA ⁷	11,744	-	11,744
Green River/Tradewater River, KY ²	28,801	-	28,801
Lake Maxinkuckee, Culver, IN ⁷	9,860	-	9,860
Log Creek Church Rd, Pike Co, IN ¹	25,497	-	25,497
Mt. Carmel, IL RA ⁷	815	-	815
Preliminary Restoration Funds ⁷	11,874	-	11,874
Troy, OH Wetlands RA ⁷	8,895	-	8,895
Wabash River, West Lafayette, IN ⁷	7,343	-	7,343
White City Wildlife Mgmt Area ¹	2,667	-	2,667
Yellowbank WMA KY RA ⁷	1,891	-	1,891

¹ Planning and Design Analysis (PDA).

² Feasibility Report.

³ Plans and Specification.

⁴ Construction Funds Received or Construction Underway.

⁵ Construction Completed.

⁶ Study Terminated.

⁷ Preliminary Restoration Plan.

⁸ Coordination Account

LOUISVILLE, KY DISTRICT

TABLE 24-M

GENERAL INVESTIGATIONS

(See Sections 49, 50, 51 & 52 of Text)

Projects	Fiscal Year Cost		
	Federal	Non-Fed	Total
SURVEYS			
Navigation Studies			
Ohio River Mainstem, Uniontown, KY, IL, IN	\$ 566,696	-	566,696
Flood Damage Prevention Studies			
Banklick Creek, Kenton Co., KY	69	-	69
Licking River Watershed, Butler, KY	94,372	-	94,372
Licking River Watershed, Cynthiana, KY	304,216	268,076	572,292
Mississinewa River, Marion, IL	4,331	-	4,331
Muncie, White River, IN	5,396	-	5,396
Ohio River & Trib Recon St. (Metro Louisville S.W.)	221,499	64,011	285,511
Ohio River, Southeastern, IL	7,486	-	7,486
Paducah, KY	0	-	0
Wabash River Basin Comprehensive	43	-	43
Wabash River, New Harmony, IN	48	-	48
Special Studies			
Great Miami River, Oxbow Area, OH	0	-	0
Metropolitan Louisville, Jefferson Co.	1,381	-	1,381
Review of Authorized Projects			
Green River L&D #6	34,979	-	34,979
Miscellaneous Activities			
Federal Energy Regulatory Commission	2,973	-	2,973
Intra-Agency Water Resources Development	29,716	-	29,716
N. American Waterfowl Management Plan	175	-	175
Special Investigation, KY	73,615	-	73,615
PRECONSTRUCTION ENGINEERING AND DESIGN			
Navigation Project - Lock and Dams			
John T. Myers Locks and Dam	1,863,747	-	1,863,747
Ohio River Greenway, In	5,472	-	5,472
Flood Control Projects - Local Protection			
Metropolitan Louisville, Beargrass Creek, KY	26,657	34,283	60,940
Paducah, KY	18,519	-	18,519
Wabash River, New Harmony, IN	511	2,343	2,854

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 24-M
CONTINUED

GENERAL INVESTIGATIONS

(See Sections 49, 50, 51 & 52 of Text)

Projects	Fiscal Year Cost		
	Federal	Non-Fed	Total
COORDINATION WITH OTHER AGENCIES			
Coordination with other Agencies and Non-Federal Interest			
Coop w/other Water Agencies	15,600	-	15,600
Planning Assistance to States			
PAS-IN-Indianapolis Three Dam Study	24,891	-	24,891
PAS-KY-Jefferson County	53,850	35,871	89,721
PAS-OH- Colerain Twp H&H IS	22,135	-	22,135
PAS Negotiation Funds	2,950	-	2,950
COLLECTION AND STUDY OF BASIC DATA			
Flood Plain Management Services			
Flood Plain Management Services	94,893	-	94,893
Harrisburg, IL	150	-	150
Newburg, IN	-17	-	-17
Quick Responses	1,845	-	1,845
SS-Scott County, IN	135,727	-	135,727
SS-Winchester, KY	270	-	270
Technical Service, General	20,356	-	20,356
Hydrologic Studies			
Hydrologic Studies	6,937	-	6,937

HUNTINGTON, WV, DISTRICT

All cost and financial statements for projects are listed at the end of this chapter. All other tables are referenced in the text and also appear at the end of this chapter.

The Huntington District includes central and south-eastern Ohio, all of West Virginia except the northern panhandle and northeastern portion, the

eastern portion of Kentucky, a portion of midwestern Virginia, a very small portion of northwestern North Carolina, embraced in the drainage basin of the Ohio River and its tributaries from approximate river mile 127 (below Pittsburgh, PA) to approximate river mile 438, immediately upstream from Foster, KY. The drainage area of the Huntington District is approximately 44,914 square miles.

Improvements

	Page		Page
Navigation			
1. Construction of Locks and Dams on Ohio River	25-2	25. Paintsville Lake, KY	25-10
2. Kanawha River, WV	25-2	26. R.D. Bailey Lake, WV	25-10
3. Open Channel Work, Ohio River	25-3	27. Roseville, OH	25-11
4. Other Authorized Navigation Projects	25-3	28. Southern and Eastern Kentucky	25-11
		29. Southern West Virginia	25-11
		30. Summersville Lake, WV	25-12
		31. Sutton Lake, WV	25-12
		32. Tom Jenkins Dam, OH	25-12
		33. West Columbus, OH	25-13
		34. Yatesville Lake, KY	25-13
		35. Inspection of Completed Flood Control Projects	25-13
		36. Flood Control Work Under Special Authorization	25-13
Flood Control			
5. Alum Creek Lake, OH	25-3		
6. Beech Fork Lake, WV	25-3		
7. Bluestone Lake, WV	25-3		
8. Burnsville Lake, WV	25-4		
9. Deer Creek Lake, OH	25-4		
10. Delaware Lake, OH	25-4		
11. Dewey Lake, KY	25-5		
12. Dillon Lake, OH	25-5		
13. East Lynn Lake, WV	25-6		
14. Fishtrap Lake, KY	25-6		
15. Grayson Lake, KY	25-6		
16. John W. Flannagan Dam and Reservoir, VA	25-6		
17. Levisa and Tug Forks of the Big Sandy and Cumberland Rivers, KY, WV and VA	25-7		
18. Massillon, OH	25-7		
19. Muskingum River Lakes, OH	25-8		
20. Newark, OH	25-8		
21. North Branch of Kokosing River Lake, OH	25-8		
22. North Fork of Pound River Lake, VA	25-9		
23. Ohio River Basin (Huntington District)	25-9		
24. Paint Creek Lake, OH	25-10		
		General Investigations	
		37. Surveys	25-14
		Tables	
		Table 25-A Cost & Financial Statement	25-15
		Table 25-B Authorization Legislation	25-22
		Table 25-C Other Authorized Navigation Projects	25-26
		Table 25-D Not Applicable	
		Table 25-E Other Authorized Flood Control Projects	25-27
		Table 25-F Not Applicable	
		Table 25-G Deauthorized Projects	25-28
		Table 25-H Inspection of Flood Control Projects	25-30

NAVIGATION

1. CONSTRUCTION OF LOCKS AND DAMS ON THE OHIO RIVER

See this heading under Chapter 19 – Ohio River.

2. KANAWHA RIVER, WV

Location. The Kanawha River is approximately 97 miles in length and is formed by the junction of the New and Gauley Rivers, a short distance above Kanawha Falls, WV, and flows generally northwesterly to the confluence with the Ohio River at Point Pleasant, WV.

Previous projects. For details of previous projects see the Annual Reports for 1875, 1915 and 1938.

Existing project. The existing project consists of three navigation structures on the Kanawha River. London Locks and Dam are located approximately 83 miles above the mouth of the Kanawha River and approximately two miles downstream from Montgomery, WV. Marmet Locks and Dam are located approximately 68 miles above the mouth of the Kanawha River at Marmet, WV. Winfield Locks and Dam are located approximately 31 miles above the mouth of the Kanawha River at Winfield, WV. Each structure has twin locks with usable dimensions of 56 feet by 360 feet. Another structure, Robert C. Byrd Locks and Dam, is located on the Ohio River at approximate river mile 279 and approximately nine miles below Gallipolis, OH. This structure has two parallel locks, the main lock is 110 feet by 1,200 feet. The existing project was completed at a cost of \$27,853,699. Construction was initiated in 1931 and completed in 1937. This system of locks and dams provides a navigable depth of nine feet from the mouth of the Kanawha River to a point approximately 91 miles upstream. For further cost details see Table 17-B, see also, Appendix C. Public Law 99-88 authorized the initiation of Engineering and Design and Real Estate Acquisition for Winfield Locks and Dam Replacement. Feasibility studies for modernization have been completed. The plan includes construction of an additional lock chamber (800'x110') adjacent to the existing locks and continued use of the riverward lock chamber and the navigation dam. The contract for Lock Replacement – Phase I was awarded in April 1990 and is complete. The contract for Construction of Additional Lock and Gate Bay, Phase IIA, was awarded in May 1993 and

is complete. The contract for lock replacement, Phase IIB, was awarded in January 1994 and is complete. The full funding estimate for new work is \$227,500,000, which is 50 percent Federal cost and 50 percent Inland Water Ways Trust Fund cost. Public Law 104-303 authorized construction of a new lock chamber at Marmet Locks and Dam. The plan includes construction of a new lock chamber (800'x110') on the right descending bank landward of the existing locks and the continued use of the current twin 360'x56' chambers and the navigation dam. Feasibility studies for modernization are complete. Pre-construction engineering and design work is complete. Real estate acquisition activities were begun in FY 1998. The full funding estimate for new work is \$313,000,000, which is 50% Federal cost and 50% Inland Waterways Trust Fund cost. Major rehabilitation work has been initiated at London Locks and Dam. The plan for rehabilitation includes lengthening the river lock chamber by moving existing upper miter gates, reinstalling them upstream at the emergency dam sill, but within the confines of existing lock walls, and replacing the upper guard wall. In FY 2000, sheet piling was purchased, fabrication of needle dam and sill was initiated and design was continuing for the second phase. The full funding estimate for major rehabilitation is \$22,200,000, which is 50% Federal cost and 50% Inland Waterways Trust Fund cost.

In addition to the navigation structures on the Kanawha River, the Corps of Engineers participated with the City of Charleston in construction of a riverfront park on the right descending bank near downtown Charleston. The total cost of the project was \$8,755,242. The federal share was \$4,370,121 and the non-federal share was \$4,385,121. The additional \$15,000 in the non-federal share was for betterments paid for by the City of Charleston. The project was completed in January 1999.

Local cooperation. All requirements for local cooperation have been completed.

Terminal facilities. There are 100 terminals along the Kanawha River located from the mouth of the river to 30 miles east of Charleston, WV. These terminals are constructed principally of steel and wood mooring piles and steel pile mooring cells. Eighteen of these terminals have railroad connections. Five terminals are paved wharves and one is owned by the City of Charleston, WV. The remaining terminals are privately owned. The principal commodities handled are coal, chemicals, acids, cement, gasoline and oil, and sand and gravel. For further details see the 1962 Annual Report.

HUNTINGTON, WV, DISTRICT

Operations during the fiscal year. The Locks and Dams were operated as required and necessary repairs and improvements were made to the locks and dams as well as to the appurtenant structures and grounds. Channel inspections were conducted periodically. In FY 2001 dredging by contract on the Kanawha River totaled 13,946 cubic yards at \$143,000.

3. OPEN CHANNEL WORK, OHIO RIVER

See this heading under Chapter 19 – Ohio River.

4. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 25-C.

FLOOD CONTROL

5. ALUM CREEK LAKE, OH

Location. The damsite is located in Delaware County, OH, on Alum Creek, a tributary of Big Walnut Creek, approximately 26 miles above the mouth of Alum Creek and 15 miles north of Columbus, OH, and approximately 157 miles above the mouth of the Scioto River.

Existing project. The existing project consists of a rolled earthfill dam 93 feet in height and 10,000 feet in length with a gate controlled spillway located in the right abutment. The reservoir provides a total storage of 134,800 acre-feet and controls a drainage area of approximately 123 square miles. See also Appendix A. Construction of the dam and appurtenant works was initiated in August 1970 and completed in July 1974. The 405 tracts of land required for the project have been acquired. The Federal cost of the project was \$56,267,422. The Sponsor will reimburse the Government an estimated \$27,880,000, exclusive of interest, for cost allocated to water supply.

Local cooperation. For details of required local cooperation see the 1981 Annual Report.

Operations during the fiscal year. The entire project is complete. The project was operated for the benefit of flood control as required, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood

damages estimated to be \$1,033,000. To date, the project has prevented an estimated \$77,411,000 in flood damages.

6. BEECH FORK LAKE, WV

Location. The damsite is located in Wayne County, WV, on Beech Fork Creek, a tributary of Twelvepole Creek, approximately four miles above the mouth of Beech Fork Creek and 20 miles above the confluence of Twelvepole Creek and the Ohio River.

Existing project. The existing project consists of a rolled earth-fill dam 86 feet in height and 1,080 feet in length, an uncontrolled spillway landward of the left abutment of the dam with a control structure at the upstream end. The reservoir provides a total storage of 37,540 acre-feet and controls a drainage area of approximately 78 square miles. Construction of the dam was initiated in December 1972 and completed in February 1977. See also Appendix A. A total of 485 tracts of land were acquired for the project. The total cost of the project was \$41,987,500.

Local cooperation. None required.

Operations during the fiscal year. The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. To date the project has prevented an estimated \$17,559,000 in flood damages.

7. BLUESTONE LAKE, WV

Location. The damsite is located on the New River in Summers County, WV, approximately three miles above Hinton, WV, and one mile from the confluence of the New and Greenbrier Rivers. The reservoir is located in Summers County, WV, and Giles County, VA.

Existing project. The existing project consists of a concrete gravity dam 180 feet in height and 2,048 feet in length. Appurtenant structures consist of a gated spillway 790 feet in length located in the channel section of the dam. The stilling pool is formed by a 23-foot-high weir located 364 feet downstream of 16 gated sluices through the spillway section and discharging into the stilling pool. Penstocks were installed at the time of construction to permit the future installation of hydropower. The reservoir provides for a total storage of 631,000 acre-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

feet. See also Appendix A. Construction of the dam was initiated in January 1942 and completed in April 1952. A total of 338 tracts of land were acquired for the project. The Federal cost of the project was \$29,458,652, which includes expenditures under the recreation at completed projects program. For further details see the 1939 and 1962 Annual Reports. In FY 2000 Dam Safety Assurance activities were initiated at Bluestone Dam. Modifications include increasing the height of the dam 13 feet; installing 309 anchors and thrust blocks; constructing gate closures across State Route 20; modifying penstocks to supplement discharge capacity; and relocating electrical lines. Dam safety assurance activities at Bluestone Dam are about 9% complete. The full funding estimate for this work is \$118,000,000 (full Federal expense).

Local cooperation. None required.

Operations during the fiscal year. The entire project is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$1,349,000. To date, the project has prevented an estimated \$1,595,375,000 in flood damages.

8. BURNSVILLE LAKE, WV

Location. The damsite is located in Braxton County, WV, on the Little Kanawha River, approximately two miles above Burnsville, WV, and 124 miles above the confluence of the Little Kanawha River and the Ohio River.

Existing project. The existing project consists of an earth embankment dam 80 feet in height and 1,000 feet in length with a gated spillway in the left abutment. The outlet works is an integral part of the spillway, consisting of five sluice gates and one low flow sluice. The reservoir provides for a total storage of 65,400 acre-feet and controls a drainage area of approximately 165 square miles. Construction of the dam was initiated in June 1973 and completed in February 1976. See also Appendix A. The 357 tracts of land required for the project have been acquired. The Federal cost of the project to date has been \$57,166,839.

Local cooperation. None required.

Operations during the fiscal year. The project is completed. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal

year the project prevented flood damages estimated to be \$1,000. To date, the project has prevented an estimated \$93,765,000 in flood damage.

9. DEER CREEK LAKE, OH

Location. The damsite is located in Pickaway County, approximately seven miles south of Mount Sterling, OH, on Deer Creek, a tributary of the Scioto River, approximately 21 miles above the mouth of Deer Creek and approximately 106 miles above the mouth of the Scioto River.

Existing project. The existing project consists of a rolled earth-filled dam 93 feet in height and 3,880 feet in length, a 741-foot concrete gravity channel section controlled by three tainter gates, an outlet works consisting of five gated sluices through a concrete spillway section discharging into a stilling basin and an earth dike 15 feet by 4,600 feet in a saddle located approximately four miles southwest of the damsite. The reservoir provides a total storage of 102,540 acre-feet and controls a drainage area of approximately 278 square miles. Construction of the dam was completed in May 1968. The 138 tracts of land required for the project have been acquired. For further project details see the 1965 Annual Report. See also Appendix A. The Federal cost of the project is \$20,406,545, including expenditures under the recreation at completed projects program.

Local cooperation. For details of required local cooperation see the 1981 Annual Report.

Operations during the fiscal year. The entire project is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. The project prevented an estimated \$714,000 in flood damages during the fiscal year. To date, the project has prevented an estimated \$33,704,000 in flood damages.

10. DELAWARE LAKE, OH

Location. The damsite is located on the Olentangy River, approximately six miles above and north of Delaware, OH, and approximately 32 miles above the confluence of the Olentangy and Scioto Rivers at Columbus, OH. The reservoir is located in Delaware, Marion and Morrow Counties, OH.

Existing project. The existing project consists of a rolled earth-fill dam with a gate controlled ogee type spillway and five outlet conduits in the channel.

HUNTINGTON, WV, DISTRICT

The dam is 18,600 feet in length and 92 feet in height. The project provides for storage of 132,800 acre-feet and controls a drainage area of approximately 381 square miles. Construction of the dam was initiated in April 1946 and completed in July 1948. For further details see the 1962 Annual Report. See also Appendix A. Total real estate requirements of 7,703 acres of fee acquisition and 2,428 acres of flowage easements have been completed. The Federal cost for the project was \$7,631,821.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for the benefit of flood control as required, and necessary repairs were made to the structure and appurtenances. The project prevented an estimated \$174,000 in flood damages during the fiscal year. To date, the project has prevented an estimated \$89,927,000 in flood damages.

11. DEWEY LAKE, KY

Location. The damsite is located on Johns Creek, approximately seven miles southeast of Paintsville, KY, and approximately six miles above the confluence of Johns Creek and the Levisa Fork of the Big Sandy River.

Existing project. The existing project consists of an earthfill dam 118 feet in height and 913 feet in length, a controlled outlet works discharging through a channel excavated in the left abutment, and a rolled earth-fill dike blocking a low divide to Brandykeg Creek and the Levisa Fork. The reservoir provides a total storage of 93,300 acre-feet and controls a drainage area of approximately 207 square miles. Construction of the dam was initiated in March 1946 and completed in July 1949. For further project detail see the 1965 Annual Report. See also Appendix A. Total real estate requirements for the project were 12,458 acres in fee and 1,170 acres in flowage easements. The Federal cost of the project was \$7,845,547, including expenditures for recreation under the completed project program. Dam Safety Assurance activities are underway at Dewey Dam. Modifications include raising Brandykeg Dike approximately 3 feet with compacted earth; adding an auxiliary spillway with a crest elevation of 688.0; and providing vertical walls on the existing spillway to restrict discharge to design capacity. Dam safety assurance activities at Dewey Dam are about 72% complete. The full funding

estimate for this work is \$18,600,000 (full Federal expense).

Local cooperation. None required.

Operations during the fiscal year. All construction activities are complete. The reservoir was operated for the benefit of flood control as required and necessary repairs were made to the structure and appurtenances. To date, the project has prevented an estimated \$61,808,000 in flood damages.

12. DILLON LAKE, OH

Location. The damsite is located on the Licking River, approximately six miles above the confluence of the Licking and Muskingum Rivers at Zanesville, Ohio.

Existing project. The existing project consists of a rolled earth-fill dam 118 feet in height and 1,400 feet in length, a controlled outlet works discharging through a 20-foot conduit in the right abutment, and an ungated 280-foot spillway adjacent to the left abutment of the dam, and two rolled earthfill dikes. The reservoir provides for a total storage of 261,110 acre-feet and controls a drainage area of approximately 748 square miles. Construction of the dam was completed in July 1959. For further project details see the 1962 Annual Report. See also Appendix A. Total real estate required for the project consists of 8,232 acres in fee and 5,380 acres of flowage easements. See also Appendix A. Federal cost of the project was \$30,218,135.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated as required for flood control, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$8,016,000. To date, the project has prevented an estimated \$295,977,000 in flood damages.

13. EAST LYNN LAKE, WV

Location. The damsite is located in Wayne County, WV, approximately six miles southeast of Wayne, WV, 10 miles above the mouth of East Fork and 42 miles above the confluence of Twelvepole Creek and the Ohio River.

Existing project. The existing project consists of an earth-fill dam 113 feet in height and 638 feet in length, an uncontrolled spillway near the left abutment of the dam, and a 13-foot reinforced concrete tunnel in the right abutment with a control structure at the upstream end. The reservoir provides for a total storage of 82,500 acre-feet and controls a drainage area of approximately 133 square miles. The required 552 tracts of land have been acquired. See also Appendix A. The Federal cost of the project was \$85,872,963.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. To date, the project has prevented an estimated \$63,304,000 in flood damages.

14. FISHTRAP LAKE, KY

Location. The damsite is located in Pike County, KY, on the Levisa Fork of the Big Sandy River, approximately 15 miles upstream from Pikeville, KY, approximately three miles above the confluence of Levisa and Russell Forks and 103 miles above the mouth of the Levisa Fork.

Existing project. The existing project consists of a rock-fill dam 195 feet in height and 1,100 feet in length, a controlled spillway containing four tainter gates located in the valley wall adjacent to the left abutment of the dam, the outlet works consists of an intake structure with three conduits controlled by slide gates and discharging into a horseshoe shaped tunnel. The reservoir provides for a total storage of 164,360 acre-feet and controls a drainage area of approximately 395 square miles. The dam was completed in February 1969. The 1,301 tracts of land required for the project have been acquired. See also Appendix A. The Federal costs for the project was \$54,754,126, which includes expenditures under the recreation at completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$46,000. To date, the project has prevented an estimated \$290,860,000 in flood damages.

15. GRAYSON LAKE, KY

Location. The damsite is located in Carter County, KY, on the Little Sandy River approximately 49 miles above the confluence with the Ohio River, and 11 miles upstream from Grayson, KY.

Existing project. The existing project consists of a random earthfill dam 120 feet in height and 1,460 feet in length, a controlled outlet works discharging through a 14-foot spillway beyond the left abutment. The reservoir provides for a total storage of 119,000 acre-feet and controls a drainage area of approximately 196 square miles. The dam was completed in January 1968. The 484 tracts of land required for the project have been acquired. See also Appendix A. Federal costs for the project was \$19,162,741, which includes expenditures for recreation facilities under the completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$7,000. To date, the project has prevented an estimated \$79,043,000 in flood damages.

16. JOHN W. FLANNAGAN DAM AND RESERVOIR, VA

Location. The damsite is located in Dickenson County, VA, approximately four miles northwest of Haysi, VA, on the Pound River approximately two miles above the confluence of the Pound River and Russell Fork and approximately 150 miles above the mouth of the Big Sandy River.

Existing project. The existing project consists of a rock-fill dam 252 feet in height and 970 feet in length, an outlet tunnel located near the left abutment of the dam with a control structure at the upstream end, a spillway controlled by six tainter gates located in a saddle just upstream from the damsite. The reservoir provides for a total storage of 145,700 acre-feet and controls a drainage area of approximately 222 square miles. The project was modified to include water quality control by adding control gates to the previously uncontrolled spillway, which increased the total storage capacity by 39,000 acre-feet. The dam was completed in December 1963.

HUNTINGTON, WV, DISTRICT

The 382 tracts of land required for the project have been acquired. See also Appendix A. The Federal cost for the project was \$20,444,383, which includes expenditures for recreation under the completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$21,000. To date, the project has prevented an estimated \$155,611,000 in flood damages.

17. LEVISA AND TUG FORKS OF THE BIG SANDY AND CUMBERLAND RIVERS, WV, VA, AND KY

Location. The Levisa and Tug Forks form the Big Sandy River at Louisa, KY. The Cumberland portion is the Upper Cumberland River Basin above Cumberland Falls, KY. The basin is approximately 100 miles in length and averages approximately 30 miles in width in the lower portion and approximately 10 miles in width above Harlan, KY. The Big Sandy Basin is within the Huntington District, and the Cumberland Basin is within the Nashville District. This report covers that portion of the project located in the Huntington District.

Existing project. The authorization language directs the Corps of Engineers to design and construct, at full Federal expense, such flood control measures as are determined to be necessary and advisable for the communities in the Tug and Levisa Forks and Upper Cumberland River basins. The authorization further states that such flood control measures would be located at or in the vicinity of Pikeville, KY, and Grundy, VA, on the Levisa Fork; Pineville, KY, on the Cumberland River; and Williamson and Matewan on the Tug Fork, in order to afford the named communities and other flood damaged locations and their immediate environs a level of protection against flooding at least sufficient to prevent any future losses from the likelihood of flooding such as occurred in April 1977. The full funding estimate for the project is \$2,044,347,000, which includes \$112,210,000 non-Federal contributions.

Local cooperation. None required.

Operations during the fiscal year. Additional engineering studies are underway to determine what is necessary and advisable to address the flooding problems in both the Levisa Fork Basin and in the Tug Fork tributary stream areas. Structural measures at the following locations have been completed: West Williamson, WV, pump station and floodwall; Williamson area snagging and clearing; Williamson housing development, Valley View Site; floodwall and pump stations for the Williamson central business district; South Williamson housing development, Pond Creek Site; replacement cafeteria, South Williamson; local protection project, South Williamson, KY; local protection project, Matewan, WV; construction of Magnolia High School ringwall levee; relocation of the Kermit Town Hall and Fire Station; and diversion of sewer lines at South Williamson, KY. Flood warning systems have been completed for the Levisa Basin and Tug Basin. Non-structural measures are complete at Williamson, WV; Matewan, WV; and South Williamson, KY. Non-structural measures are underway at Hatfield Bottom, Lower Mingo County, Upper Mingo County, Wayne County and McDowell County in WV; at Pike County, Martin County, and the Town of Martin in KY; and at Grundy, VA.

18. MASSILLON, OH

Location. The project is located in Stark County, on the Tuscarawas River, approximately 200 miles above the mouth of the Muskingum River.

Existing project. The existing project consists of channel improvement to the Tuscarawas River, combined with the construction of drainage facilities, levees and pump stations. For further details see the 1962 Annual Report. Construction was initiated in July 1940 and completed in October 1951.

Local cooperation. None required. See the 1962 Annual Report for details of local contribution of work beyond the scope of the project. To date, the system has prevented an estimated \$5,711,000 in flood damages.

Operations during the fiscal year. Routine inspections were conducted to determine that the improved channel was maintained in satisfactory condition.

19. MUSKINGUM RIVER LAKES, OH

Location. The Muskingum River lies in Southeast Ohio and including tributaries, drains

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

approximately 8,000 square miles. The headwaters rise about 25 miles south of Lake Erie and flow into the Ohio River at Marietta, OH, 172 miles below Pittsburgh, PA.

Existing project. The existing project consists of the construction and operations and maintenance of 14 reservoirs and appurtenant works in the Muskingum River Basin. The existing project originally authorized by the Public Works Administration in February 1934. Construction of the system was initiated in January 1935 and completed in November 1938. The system was initially operated and maintained by the Muskingum Watershed Conservancy District of Ohio, the sponsoring agency, from July 1938 to August 1939 when operation and maintenance became the responsibility of the Corps of Engineers in accordance with the provisions of the 1939 Flood Control Act. For further project details, see the 1962 Annual Report. See also Appendix A. The cost of the project was \$41,247,815, which includes expenditures for recreation facilities under the completed project program. A significant Major Rehabilitation program was approved in December 1977 in order to assure the integrity of the existing 14 structures under the originally designed maximum pool conditions. Underseepage and abutment seepage problems are being corrected through the installation of downstream blankets, toe drains and/or relief wells and grouting. A related but separate program entitled Dam Safety Assurance has been initiated. Under current hydrologic design standards, deficiencies exist in the spillways at the 14 projects in the system. Corrective measures include widening present spillways, constructing new spillways and installing parapet walls on top of the dams have been completed at 7 projects. Seven remaining projects with deficiencies need corrective measures. New seismic criteria will require all dams to be evaluated for seismic deficiencies. If deficiencies are found, corrective measures will be required. Dam Safety Assurance activities are underway at Beach City Lake. Modifications include upgrading spillway adequacy including raising the dam and dike, constructing a parapet wall, raising roadways, and modifying a railroad stoplog closure. Dam safety assurance activities at Beach City Lake are 100% complete. The full funding estimate for this work is \$34,590,000, which includes \$8,000,000 from the non-Federal sponsor, the Muskingum Watershed Conservancy District.

Local cooperation. All requirements for local cooperation have been met. For further details see the 1942 Annual Report.

Operations during the fiscal year. The reservoirs were operated for flood control as required, and the necessary repairs were made to the structures and appurtenances. The system prevented an estimated \$26,325,000 in flood damages during the fiscal year. To date, the system has prevented an estimated \$2,189,347,000 in flood damages.

20. NEWARK, OH

Location. The project is located in Licking County at the junction of the North and South Forks of the Licking River, approximately 29 miles above the confluence with the Muskingum River at Zanesville, OH.

Existing project. For details of the existing project see the 1981 Annual Report. Construction of the existing project was initiated in July 1940 and completed in November 1941. As a result of the 1968 Flood Control Act the existing project was modified to include improvement of the interior drainage facilities, construction of Log Pond Run diversion channel and modification of the North Fork Channel. Construction of the Log Pond Run diversion channel was awarded in September 1980 and completed in December 1981. The total cost of the project to date is \$11,151,232.

Local cooperation. For details of required and completed local cooperation see the 1981 Annual Report.

Operations during the fiscal year. Routine inspections were conducted to determine that the improved channel was maintained in satisfactory condition. To date, the project has prevented an estimated \$3,299,000 in flood damages.

21. NORTH BRANCH OF KOKOSING RIVER LAKE, OH

Location. The damsite is located in Knox County, OH, on the North Branch of Kokosing River, approximately nine miles above the confluence of the Kokosing and North Branch Rivers, and two miles northwest of Fredericktown, OH.

Existing project. The existing project consists of a rolled-earth dam, 70 feet in height and 1,400 feet in length with an uncontrolled spillway adjacent to the right abutment, and an uncontrolled, reinforced concrete outlet work located in the right abutment of the dam. The reservoir provides for a total storage of 14,885 acre-feet and controls a drainage area of

HUNTINGTON, WV, DISTRICT

approximately 45 square miles. The 56 tracts of land required for the project have been acquired. Construction of the dam was completed in May 1972. See also Appendix A. The Federal cost for the project was \$6,665,985, which includes expenditures under the recreation at completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for flood control as required and the necessary repairs were made to the structure and appurtenances.

22. NORTH FORK OF POUND RIVER LAKE, VA

Location. The damsite is located in Wise County, VA, on the North Fork of Pound River, approximately one mile upstream from the confluence of the North and South Forks which form the Pound River and approximately three miles upstream from Pound, VA.

Existing project. The existing project consists of a rockfill dam, 130 feet in height and 600 feet in length, an uncontrolled spillway in a saddle upstream from the dam, and an outlet tunnel in the right abutment with a control structure at the upstream end. The reservoir provides a total storage of 11,300 acre-feet and controls a drainage area of approximately 17 square miles. The 127 tracts of land required for the project have been acquired. Construction of the dam was completed in January 1966. See also Appendix A. The Federal cost for the project was \$6,186,901, which includes expenditures for recreation under the completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction is complete. The project was operated as required for flood control and the necessary repairs were made to the structure and appurtenances. To date, the project has prevented an estimated \$5,493,000 in flood damages.

23. OHIO RIVER BASIN (HUNTINGTON DISTRICT)

Location. The work covered by this project consists of a series of levees, floodwalls, channel improvements and dams and lakes in the Ohio River Basin within the Huntington District.

Existing project. The existing project consists of the individual projects considered in the Ohio River Basin comprehensive plan within the Huntington District.

Operations during the fiscal year. The completed local protection projects, which are operated and maintained by local interests, except for those local protection projects for which individual reports have been included. To date the project has prevented flood damages of an estimated cumulative total of \$924,491,000.

24. PAINT CREEK LAKE, OH

Location. The damsite is located in Ross County, OH, on Paint Creek, a tributary of the Scioto River, approximately 37 miles above the mouth of Paint Creek and 100 miles above the mouth of the Scioto River and approximately four miles east of New Parkersburg, OH.

Existing project. The existing project consists of a rock and random earth fill dam, 118 feet in height and 700 feet in length, a gate controlled spillway located near the right abutment, an outlet tunnel located in the right abutment with a control structure at the upstream end, and a random rockfill dike located at the right abutment of the spillway. The reservoir provides for a total storage of 145,000 acre-feet and controls a drainage area of approximately 576 square miles. Construction of the dam was completed in July 1973. The 257 tracts of land required for the project have been acquired. See also Appendix A. Federal cost for the project was \$26,969,962, which includes expenditures under the recreation at completed projects program.

Local cooperation. For details of required local cooperation see the 1981 Annual Report.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for flood control as required and the necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented an estimated \$531,000 in flood damages. To date, the project has prevented flood damages estimated to be \$79,837,000.

25. PAINTSVILLE LAKE, KY

Location. The damsite is located in Johnson County, KY, on Paint Creek, a tributary of the Levisa Fork of the Big Sandy River, approximately eight

miles above the mouth of Paint Creek, and four miles west of Paintsville, KY.

Existing project. The existing project consists of a rockfill dam 153 feet in height and 1,560 feet in length, an uncontrolled spillway located southwest of the right abutment of the dam, and an outlet tunnel in the right abutment with a control structure at the upstream end. The reservoir provides for a total storage of 76,642 acre-feet and controls a drainage area of approximately 93 square miles. The 635 tracts of land required for the project have been acquired. Construction of the dam was initiated in September 1976 and was completed in September 1980. See also Appendix A. The total cost of the project to date has been \$60,194,986. The local sponsor has reimbursed the Government \$377,000 for the cost sharing portion of recreation development.

Operations during the fiscal year. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. To date, the project has prevented flood damages estimated to be \$7,442,000.

26. R. D. BAILEY LAKE, WV

Existing project. The damsite is located in Wyoming County, WV, on the Guyandotte River approximately 108 miles above the confluence with the Ohio River and one mile east of Justice, WV.

Existing project. The existing project consists of a rolled rockfill dam with a concrete face, 305 feet in height and 1,330 feet in length, an uncontrolled spillway located in a saddle in the right abutment of the dam, and an outlet tunnel in the left abutment with a control structure located at the upstream end. The reservoir provides for a total storage of 203,700 acre-feet and controls a drainage area of approximately 540 square miles. Construction of the dam was initiated in November 1973 and completed in December 1979. See also Appendix A. A total of 2,109 tracts of land were acquired for the project. The total cost of the project to date has been \$261,251,678.

Local cooperation. None required.

Operations during the fiscal year. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$9,906,000. To date, the project has prevented flood damages estimated to be \$131,289,000.

27. ROSEVILLE, OH

Location. The project is located in Muskingum and Perry Counties, on Moxahala Creek, approximately six miles from the confluence with Jonathan Creek, a tributary of the Muskingum River.

Existing project. The existing project consists of 7,291 feet of channel improvement; 6,400 feet of levee and railroad embankment enlargements; and the necessary appurtenances for interior drainage. Total Federal cost of the project was \$910,785. Construction was initiated in August 1959 and completed in October 1960.

Local cooperation. All requirements for local cooperation have been completed. See also the 1962 Annual Report. Total costs of local requirements were \$62,000.

Operations during the fiscal year. Routine inspections of the improved portion of the project were conducted to determine that the project was maintained in satisfactory condition. During the fiscal year the project prevented flood damages estimated to be \$15,000. To date, the project has prevented an estimated \$1,257,000 in flood damages.

28. SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE

Location: The project area consists of a 27 county region in southern and eastern Kentucky, which includes portions of the Huntington, Nashville, and Louisville Districts. The program is for design and construction assistance of environmental infrastructure projects.

Existing project: Within Huntington District there are 10 projects in various stages. Projects in which construction is complete with the date of completion are as follows:

- Allen sanitary sewage collection system - Dec 99
- So Williamson Mountain Water sewer line collection system - Aug 01
- Paintsville #2 sewer line extension - Jul 01
- Sally Stevens sewer collection system - Oct 00
- Jenkins extension of existing sewage line - Aug 01

Projects in which construction is underway include:

- Paintsville #1 extension of existing sewage line - 95% complete.

HUNTINGTON, WV, DISTRICT

Projects in which the plans and specifications are underway include:

- David collection system and pump station addition
- Manchester collection system and pump station
- Fleming-Neon sanitary sewer service
- Floyd Co-Rolling Acres sewer service extension

Work is authorized by Sec 531 of the Water Resources Development Act of 1996 (PL 104-303); as amended by Sec 532 of Water Resources Development Act of 1999.

Local cooperation: Reimbursable construction PCAs, 75% federal and 25% non-federal, were executed with the appropriate local sponsors.

Operating during the fiscal year: During the year, \$1,186,626 was expended in the various activities related to the projects.

29. SOUTHERNN WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE

Location. The project area consists of 16 counties in southern West Virginia; Boone, Cabell, Fayette, Greenbrier, Lincoln, Logan, Mercer, Mingo, Monroe, McDowell, Pocahontas, Raleigh, Summers, Wayne, Webster, and Wyoming. The program is for design and construction assistance of environmental infrastructure, largely water supply and wastewater treatment facilities, in that region.

Existing project. Five projects are in various stages: Construction of the Gilbert Sewer Collection and Treatment Facility was completed in December 1999. Construction of the Mercer County Water Distribution System and a modification called the Jean White Extension, was completed in May 2000. Design of the Krouts Creek (Huntington) Storm Drainage Project is complete. Construction of the Fayette Plateau Region Water System Phase IV is 90% complete. Design of the McDowell County PSD (Pageton) Water System is complete. Work is authorized under Section 340 of the Water Resources Development Act of 1992 (PL 102-580).

Local Cooperation. Project Cooperation Agreements (PCA) were executed with the Town of Gilbert, Mercer County, and Fayette County, City of Huntington, and McDowell County.

Operating during the fiscal year: During the year, \$1,152,703 was expended in the various activities related to the projects.

30. SUMMERSVILLE LAKE, WV

Location. The damsite is located at Ruckers Bend in Nicholas County on the Gauley River approximately 35 miles above the confluence of the Gauley and New River at Gauley Bridge, WV.

Existing project. The existing project consists of a rockfill dam having a height of 357 feet and a length of 2,280 feet, an outlet tunnel in the right abutment with a control structure located at the upstream end, an uncontrolled spillway located west of the right abutment and two earthfill dikes. The reservoir provides for a total storage of 413,800 acre-feet and controls a drainage area of 803 square miles. See also Appendix A. Construction of the dam was initiated in March 1960 and completed in March 1966. A total of 9,346 acres of land were acquired for the project. The Federal cost of the project was \$48,375,884, which includes expenditures under the recreation at completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structures and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$7,283,000. To date, the project has prevented an estimated \$407,324,000 in flood damages.

31. SUTTON LAKE, WV

Location. The damsite is located on the Elk River in Braxton County approximately one mile above Sutton, WV, and 101 miles above the mouth of the Elk River.

Existing project. The existing project consists of a concrete gravity dam having a height of 220 feet and a length of 1,178 feet, a gated spillway in the channel section of the dam, comprised of six tainter gates supported by piers, an outlet works comprised of five gate sluices through the spillway section. The reservoir provides for storage of 265,300 acre-feet and controls a drainage area of 537 square miles. See also Appendix A. Construction of the dam was initiated in 1949 and completed in June 1960. The total cost of the project was \$37,029,585.

Local cooperation. None required. See the 1981 Annual Report for contributed funds.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$540,000. To date, the project has prevented an estimated \$261,453,000 in flood damages.

32. TOM JENKINS RESERVOIR, OH

Location. The damsite is located in Athens County, on the East Branch of Sunday Creek, a tributary of the Hocking River, approximately three miles north of Glouster, OH, and 57 miles above the mouth of the Hocking River.

Existing project. The existing project consists of a rolled-earth dam, 84 feet in height and 944 feet in length, a controlled works discharging through a tunnel in the left abutment, and an uncontrolled spillway in the ridge running south from the damsite. The reservoir, known as Burr Oak Lake, provides for a total storage of 26,900 acre-feet and controls a drainage area of approximately 33 square miles. See also Appendix A. Construction of the project was initiated in March 1948 and completed in February 1950. A total of 100 acres of land were acquired for the project. The Federal costs of the project were \$2,086,503, which includes expenditure for recreation at completed project.

Local cooperation. All requirements of local cooperation have been met. See also the 1962 Annual Report. Contributed funds in the amount of \$575,000 have been received from the State of Ohio.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$7,000. To date, the project has prevented an estimated \$22,184,000 in flood damages.

33. WEST COLUMBUS, OH

Location. The project is located in Columbus, OH, along the Scioto River, adjacent to the downtown area in Franklin County, OH.

Existing project. The project under construction consists of a 5.2-mile system including levee, floodwall and high ground. Fourteen gate closures, interior drainage facilities and construction of two new pump stations and reworking two existing pump stations. The protected area contains about 1,200 acres and is completely urban with a mix of residential, industrial and commercial development.

Local cooperation. Local interests are required to provide all lands, easements, and rights-of-way; to verify or relocate buildings; utilities, roads, bridges (except railroad bridges), and other facilities where necessary. Pay a cash contribution of at least 5%, as required by the Water Resources Development Act of 1986, of the costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.

Operations during the fiscal year. Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1989 and funds to initiate construction were appropriated in Fiscal Year 1993. The total estimated cost of the project is \$127,300,000 of which \$35,600,000 is non-Federal. The construction contracts which have been completed to date include:

Dry Run Levee (Phase IA), awarded in September 1993.

Dry Run Levee (Phase IB), awarded in April 1995.

Phase IIA, awarded in March 1996.

Dodge Park Pump Station (Phase IIB), awarded in May 1996.

Phase IIC, awarded in August 1997.

Phase IID, awarded in July 1998.

Phase IIE, awarded in July 1999.

Phase IIIA North and South.

34. YATESVILLE LAKE, KY

Location. The damsite is located in Lawrence County, on Blaine Creek, a tributary of the Big Sandy River, approximately five miles west of Louisa, KY, and 18 miles above the mouth of Blaine Creek.

Existing project. The existing project consists of an earth and rockfill dam, 104 feet in height and 760 feet in length, an uncontrolled spillway located one-half mile southeast of the right abutment of the dam. The outlet works consists of a 13-foot diameter tunnel through the left dam abutment. The reservoir provides for a total storage of 86,951 acre-feet and controls a drainage area of approximately 208 square miles. The 778 tracts of land required for the project

HUNTINGTON, WV, DISTRICT

have been acquired. Construction was completed in May 1995. See also Appendix A. The total cost of the project to date has been \$99,453,537.

Operations during the fiscal year. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. To date the project has prevented an estimated \$17,569,000 in flood damages.

35. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

The Flood Control Act of June 22, 1936, and subsequent acts require local interest to furnish assurances that they will operate and maintain certain local protection projects after completion in accordance with regulations prescribed by the Secretary of the Army. District Engineers are responsible for the administration of these regulations within their respective districts. Maintenance inspections were made during the fiscal year of those completed units transferred to local interests for operation and maintenance. Local interests were advised, as necessary, of measures required to maintain the projects in accordance with the standards prescribed by regulations. Total costs for fiscal year 2001 were \$146,464. Total cost to September 30, 2001, were \$2,735,647. The flood control works inspected and the dates of inspection are tabulated in Table H.

36. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency bank protection activities pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress are tabulated as follows:

<u>Location</u>	<u>FY 2001 Cost</u>
Sec 14, Coordination Account.....	\$40,545
St. Albans, WV, Kanawha River	2,192
Ohio R., Middleport, OH.....	23,998
Kanawha R., So Charleston, Sewer Main, WV....	675,634
Sardis, Monroe County, OH	259
Athens Co., SR 144, OH.....	5,559
Greenup, KY	6,442
Ohio R., Gallia C., SR 7, OH.....	103,767
Paden City, WV.....	23,548
River Ave., So Charleston, WV	18,289
Monroe County, OH.....	26,191

Flood control activities pursuant to Section 205 of the 1948 Flood Control Act, Public Law 852, 80th Congress are tabulated as follows:

<u>Location</u>	<u>FY 2001 Cost</u>
Sec 205, Coordination Account.....	\$9,676
Dry Fork of Little Fork Willard, KY.....	-2,740
Whitehall, Mason and Turkey Runs, OH	43,669
Vinton, Gallia Co., OH	36,636
Augusta, KY	64,405

Flood activities pursuant to Section 208 of the 1954 Flood Control Act, Public Law 780, 83rd Congress are tabulated as follows:

<u>Location</u>	<u>FY 2001 Cost</u>
Dickenson County, VA	\$7,173

Activities pursuant to Project Modification to Improve the Environment (PL 99-662, Sec 1135) are tabulated as follows:

<u>Location</u>	<u>FY 2001 Cost</u>
Sec 1135, Coordination Account.....	\$15,980
Preliminary Restoration Plans	1,409
Piedmont Lake Reclamation Project, OH.....	309,295
Wills Creek, Linton Road Mine, OH.....	69,022
Yatesville Lake, Upper Blaine Wetlands, KY.....	5,718
Dillon Lake, OH.....	9,851

Activities pursuant to Aquatic Restoration (PL 104-303, Sec 206) are tabulated as follows:

<u>Location</u>	<u>FY 2001 Cost</u>
Sec 205, Coordination Account.....	\$10,953
Preliminary Restoration Plans	2,030
South Fork, New River, Boone, NC	185,284
Ore Knob, NC.....	38,770
Huff Run, OH.....	3,285
Big Darby Creek, OH.....	105,672
Lancaster, OH.....	1,924
Glenbrier, Lesage, WV	4,418
Three Creeks Environmental Restoration, OH.....	1,660

Work performed under special legislation pursuant to Water Resources Development Act of 1986 (PL-99-5662) as follows:

<u>Location</u>	<u>FY 2001 Cost</u>
Kanawha R., St Albans, WV.....	\$11,633

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Work performed under special legislation pursuant to Water Resources Development Act of 1996 (PL 104-303) as follows:

<u>Location</u>	<u>FY 2001 Cost</u>
Greenbrier River, Marlinton, WV.....	\$1,452,850
Lower Mud River, Milton, WV.....	346,433

Work performed under special legislation pursuant to Water Resources Development Act of 1999 (PL 106-53) as follows:

<u>Location</u>	<u>FY 2001 Cost</u>
Ohio Environmental Assistance.....	\$46,876
Central WV Environmental Infrastructure	83,414

Flood control and coastal emergency activities pursuant to Public Law 99, 84th Congress, were conducted as required during FY 2001 at a cost of \$509,973.

National emergency management activities were accomplished by the district as required. The costs for these activities during FY 2001 were \$32,872.

National emergency management activities were accomplished by the district as required. The costs for these activities during FY 2001 were \$32,872.

GENERAL INVESTIGATIONS

36. SURVEYS

Fiscal year 2001 costs were \$3,743,285 itemized as follows:

<u>Location</u>	<u>FY 2001 Cost</u>
Navigation Studies	\$962,601
Flood Damage Prevention Studies	236,841
Special Studies	155,718
Comprehensive Basin Studies	0
Review of Authorized Projects.....	0
Miscellaneous Activities.....	274,057
Coordination with Other Agencies	28,309
Collection and Study of Basic Data.....	218,697
Preconstruction Engineering and Design (Projects not Fully Authorized)	1,287,281
Preconstruction Engineering and Design (Projects Fully Authorized)	579,781

HUNTINGTON, WV, DISTRICT

Table 25-A Cost and Financial Statement

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep. 30, 2001	
2	Kanawha River, WV (existing project)	New Work						
		Approp					27,853,699	¹
		Cost					27,853,699	¹
		Maint						
		Approp	7,101,300	7,726,397	7,184,996	6,487,816	185,377,261	²
		Cost	7,008,331	8,282,289	7,141,925	6,433,269	185,249,465	²
		Rehab						
		Approp					130,984	³
		Cost					130,984	³
2	Elk River Harbor, WV	Maint						
		Approp	-20,000	518,203	-1,367	304,510	2,725,633	
		Cost	0	519,855	0	299,414	2,720,337	
2	Charleston Riverfront Park, WV	New Work						
		Approp	15,000	-22,228	0		4,370,121	
		Cost	832	-2,933	0		4,370,121	
2	Winfield L&D	New Work						
		Approp	11,782,000	8,274,000	2,880,000	42,000	227,344,000	⁴
		Cost	12,049,325	8,473,275	2,946,031	247,614	227,257,509	⁵
2	Marmet L&D	New Work	2,129,000	9,924,000	10,909,000	13,948,000	36,910,000	⁶
		Approp	1,742,629	9,610,205	11,577,252	13,710,285	36,640,371	⁷
		Cost						
2	London L&D	New Work			1,326,000	1,270,000	2,596,000	⁸
		Approp			1,118,822	1,305,006	2,423,828	⁹
		Cost						
5	Alum Creek Lake, Oh	New Work						
		Approp					56,267,422	
		Cost					56,267,422	
		Maint						
		Approp	679,000	722,902	674,535	969,519	14,214,094	¹⁰
		Cost	681,951	741,718	677,513	780,461	14,022,899	¹⁰
6	Beech Fork Lake	New Work						
		Approp					41,987,500	
		Cost					41,987,500	
		Maint						
		Approp	977,150	1,057,041	1,301,099	1,149,417	18,729,589	
		Cost	1,002,919	1,060,805	1,294,647	1,143,991	18,706,211	

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 25-A (Cont'd) Cost and Financial Statement

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep. 30, 2001	
7	Bluestone Lake	New Work						
		Approp					29,458,652	¹¹
		Cost					29,458,652	¹¹
		Maint						
		Approp	2,029,450	3,307,248	1,621,800	4,115,643	40,412,558	¹²
		Cost	1,962,929	3,360,118	1,778,295	3,913,298	40,188,363	¹²
		Dam Safety						
		Approp			3,349,000	7,904,000	11,253,000	
		Cost			2,590,849	7,735,109	10,325,958	
8	Burnsville Lake	New Work						
		Approp					57,166,839	
		Cost					57,166,839	
		Maint						
		Approp	1,702,535	1,457,489	1,492,133	1,819,970	26,994,093	¹³
		Cost	1,512,084	1,711,993	1,493,198	1,808,463	26,965,567	¹³
9	Deer Creek Lake	New Work						
		Approp					20,406,545	¹⁴
		Cost					20,406,545	¹⁴
		Maint						
		Approp	688,949	630,818	690,797	672,483	14,964,591	¹⁵
		Cost	713,089	652,197	687,425	667,429	14,965,735	¹⁵
10	Delaware Lake	New Work						
		Approp					7,631,821	
		Cost					7,631,821	
		Maint						
		Approp	652,300	657,441	809,872	870,970	20,005,778	¹⁶
		Cost	714,700	667,985	808,930	862,363	19,987,471	¹⁶
11	Dewey Lake	New Work						
		Approp					7,845,547	¹⁷
		Cost					7,845,547	¹⁷
		Maint						
		Approp	1,229,070	1,431,847	1,373,286	1,330,685	31,358,565	¹⁸
		Cost	1,293,057	1,457,908	1,352,736	1,342,517	31,349,273	¹⁸
		Dam Safety						
		Approp	782,000	1,090,315	1,171,744	8,888,000	13,704,059	
		Cost	782,016	851,140	1,228,998	8,836,123	13,389,628	

HUNTINGTON, WV, DISTRICT

Table 25-A (Cont'd) Cost and Financial Statement

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep. 30, 2001	
12	Dillon Lake	New Work						
		Approp					30,218,135	¹⁹
		Cost					30,218,135	¹⁹
		Maint						
		Approp	1,038,975	652,667	783,493	723,150	14,416,830	²⁰
		Cost	1,085,452	668,500	777,386	698,624	14,376,797	²⁰
13	East Lynn Lake	New Work						
		Approp					85,872,963	
		Cost					85,872,963	
		Maint						
		Approp	1,400,300	1,394,241	1,665,901	1,847,637	30,383,467	²¹
		Cost	1,477,694	1,404,485	1,653,492	1,812,927	30,333,759	²¹
14	Fishtrap Lake	New Work						
		Approp					54,754,126	²²
		Cost					54,754,126	²²
		Maint						
		Approp	1,552,475	1,262,554	1,647,314	1,754,255	26,423,125	²³
		Cost	1,587,817	1,399,986	1,651,328	1,746,772	26,482,524	²³
15	Grayson Lake	New Work						
		Approp					19,162,741	²⁴
		Cost					19,162,741	²⁴
		Maint						
		Approp	1,120,800	987,424	1,006,828	1,223,795	21,087,356	
		Cost	1,139,640	1,017,170	1,002,220	1,228,744	21,087,642	
16	J. W. Flannagan	New Work						
		Approp					20,444,383	²⁵
		Cost					20,444,383	²⁵
		Maint						
		Approp	1,076,025	1,186,343	1,333,463	1,310,385	27,793,921	²⁶
		Cost	1,171,950	1,214,559	1,339,592	1,268,970	27,746,199	²⁶
17	Levisa and Tug Forks	New Work						
		Approp	30,050,555	20,323,000	11,773,000	18,161,859	419,148,646	²⁷
		Cost	20,377,601	20,788,522	18,804,408	16,954,129	409,863,339	²⁷
18	Massillon, Ohio	New Work						
		Approp					8,139,406	²⁸
		Cost					8,139,406	²⁸
		Maint						
		Approp	800	6,200	1,351	19,320	377,863	
		Cost	777	6,223	1,351	19,288	377,831	

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 25-A (Cont'd) Cost and Financial Statement

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep. 30, 2001	
19	Muskingum River Dams and Lakes	New Work						
		Approp					41,247,815	²⁹
		Cost					41,247,815	²⁹
		Maint						
		Approp	6,182,225	6,557,239	6,291,901	7,357,638	141,309,106	³⁰
		Cost	6,356,653	5,830,088	6,198,899	7,224,978	140,133,245	³⁰
		Maint (Rehab)						
		Approp					982,300	
		Cost					982,300	
		Rehab						
		Approp					22,172,945	³¹
		Cost					22,172,945	³¹
		Dam Safety						
		Approp	94,000	814,000	1,776,000	822,000	31,182,000	
		Cost	155,255	55,657	1,960,262	786,930	30,547,542	
20	Newark Ohio (Previous Project)	New Work						
		Approp					845,916	
		Cost					845,916	
		Maint						
		Approp					758,673	
		Cost					758,673	
	(Existing Project)	New Work						
		Approp	10,720	0	0	0	11,151,232	³²
		Cost	11,103	0	0	0	11,151,232	³²
21	North Branch of Kokosing River	New Work						
		Approp					6,665,985	³³
		Cost					6,665,985	³³
		Maint						
		Approp	317,000	310,626	491,967	623,305	5,330,427	
		Cost	315,069	323,290	461,533	644,199	5,319,959	
22	North Fork of Pound River Lake	New Work						
		Approp					6,186,901	³⁴
		Cost					6,186,901	³⁴
		Maint						
		Approp	308,125	304,209	304,341	493,919	9,689,133	³⁵
		Cost	321,317	320,233	304,235	478,246	9,762,159	³⁵
23	Ohio River Basin	New Work						
		Approp					355,861	³⁶
		Cost					355,861	³⁶

HUNTINGTON, WV, DISTRICT

Table 25-A (Cont'd) Cost and Financial Statement

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep. 30, 2001	
24	Paint Creek Lake	New Work						
		Approp					26,969,962	³⁷
		Cost					26,969,962	³⁷
		Maint						
		Approp	653,900	571,144	612,843	805,003	14,325,375	³⁸
		Cost	668,615	611,987	597,171	813,910	14,314,323	³⁸
25	Paintsville Lake	New Work						
		Approp					60,194,986	
		Cost					60,194,986	
		Maint						
		Approp	921,175	868,773	935,486	1,137,462	15,435,171	
		Cost	998,998	881,584	932,399	1,131,038	15,419,718	
26	R. D. Bailey Lake	New Work						
		Approp	-25,555				261,251,678	³⁹
		Cost	42,530				261,251,678	³⁹
		Maint						
		Approp	1,404,470	1,399,225	1,553,551	1,563,200	29,418,247	⁴⁰
		Cost	1,474,197	1,417,407	1,560,074	1,551,729	29,398,205	⁴⁰
27	Roseville, Ohio	New Work						
		Approp					910,785	
		Cost					910,785	
		Maint						
		Approp	2,700	2,820	2,315	2,500	252,985	
		Cost	2,667	2,698	2,470	569	251,054	
28	Southern and Eastern Kentucky Env. Infrastructure	New Work						
		Approp	760,000	3,870,000	-1,045,000	992,000	4,577,000	
		Cost	88,265	448,270	453,660	1,186,626	2,176,821	
29	Southern West Virginia Env. Infrastructure	New Work						
		Approp	378,000	259,000	1,279,000	2,514,010	9,430,010	⁴¹
		Cost	293,602	4,129,871	1,343,504	1,153,703	7,537,605	⁴¹
30	Summersville Lake	New Work						
		Approp					48,375,884	⁴²
		Cost					48,375,884	⁴²
		Maint						
		Approp	1,786,150	1,693,089	1,564,592	1,699,759	36,570,254	⁴³
		Cost	1,784,633	1,725,621	1,565,797	1,717,536	36,455,129	⁴³
31	Sutton Lake	New Work						
		Approp					37,029,585	⁴⁴
		Cost					37,029,585	⁴⁴
		Maint						
		Approp	1,758,790	1,449,654	1,762,674	1,828,429	41,462,613	⁴⁵
		Cost	1,775,213	1,492,809	1,779,211	1,818,914	41,430,710	⁴⁵

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 25-A **Cost and Financial Statement**

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to Sep. 30, 2001	
32	Tom Jenkins Dam	New Work						
		Approp					2,086,503	⁴⁶
		Cost					2,086,503	⁴⁶
		Maint						
		Approp	248,000	434,775	430,979	338,239	4,145,800	
		Cost	264,812	462,427	430,177	334,393	8,134,332	
33	West Columbus	New Work						
		Approp	14,226,280	10,933,000	8,736,961	8,812,000	71,323,241	⁴⁷
		Cost	9,190,907	11,384,643	10,881,536	9,596,620	69,350,593	⁴⁷
34	Yatesville Lake	New Work						
		Approp	6,000				99,456,500	
		Cost	4,473				99,453,537	
		Maint						
		Approp	944,360	921,032	940,585	1,117,713	11,007,262	
		Cost	997,216	934,879	938,308	1,104,747	10,982,362	

HUNTINGTON, WV, DISTRICT

¹Includes \$4,294,612 for new work for previous projects, \$4,498,636 Emergency Relief funds, \$9,004,800 Public Works funds and \$686,317 Code 713 funds.

²Includes \$3,883,513 for maintenance of previous projects and \$546,090 Maintenance and Operation funds.

³Public Works Acceleration funds.

⁴Includes \$21,000 Inland Waterways Trust funds.

⁵Includes \$179,995 Inland Waterways Trust Fund.

⁶Includes \$6,973,000 Inland Waterways Trust funds.

⁷Includes \$6,866,033 Inland Waterways Trust funds.

⁸Includes \$635,000 Inland Waterways Trust funds.

⁹Includes \$669,399 Inland Waterways Trust funds.

¹⁰Includes \$1,063 Maintenance and Operation funds.

¹¹Includes \$543,960 Emergency Relief funds, \$9,698 Public Works Acceleration funds, \$211,850 Code 711 funds and \$75,000 Code 713 funds.

¹²Includes \$2,795 Maintenance and Operation funds.

¹³Includes \$748,281 Maintenance and Operation funds.

¹⁴Excludes \$225,090 contributed funds. Includes \$590,000 Code 711 funds.

¹⁵Includes \$130,000 provided by the Productive Employment Act of 1983.

¹⁶Includes \$240,000 provided by the Productive Employment Act of 1983.

¹⁷Includes \$23,087 Public Works Acceleration funds, \$1,089,940 Code 711 funds and \$231,105 Code 713 funds.

¹⁸Includes \$82,900 Special Recreation Use Fee Funds and \$747,028 Maintenance and Operations Funds.

¹⁹Includes \$100,000 provided from the Productive Employment Act of 1983.

²⁰Includes \$1,924 Maintenance and Operations funds.

²¹Includes \$209,918 Special Recreation Use Fee Funds and \$747,028 Maintenance and Operations Funds.

²²Includes \$362,649 Code 711 funds and \$10,000 Code 712 funds.

²³Includes \$38,000 Special Recreation Use Fee Funds and \$748,714 Maintenance and Operations Funds.

²⁴Includes \$406,919 Code 711 funds and \$2,317 code 713 funds.

²⁵Includes 422,983 Code 711 funds

²⁶Includes \$88,710 special recreation use funds.

²⁷Includes Cost from Ohio River Division of \$696,000.

²⁸Includes \$477,813 contributed funds.

²⁹Includes \$27,190,000 National Industrial Recovery funds and \$528,288 Code 711 funds.

³⁰Includes \$206,815 Maintenance and Operations funds.

³¹Includes \$61,945 public Works Acceleration funds.

³²Excludes \$160,082 contributed funds.

³³Includes \$45,177 Code 711 funds.

³⁴Includes \$64,233 Code 711 funds.

³⁵Includes \$68,200 special recreation use fees.

³⁶Includes \$10,920 Emergency Relief funds.

³⁷Includes \$14,153 Code 711 funds.

³⁸Includes \$31,496 special recreation use fee funds.

³⁹Includes \$5,534 Consolidated Army funds.

⁴⁰Includes \$60,000 provided from the Productive Employment Act of 1983, and \$85,233 Maintenance and Operations Funds.

⁴¹Excludes \$1,427,732 cumulative contributed funds.

⁴²Includes \$300,062 Code 711 funds.

⁴³Includes \$214,112 special recreation use fee funds, \$300,000 provided from the Productive Appropriations Act of 1983, and \$99,997 Maintenance and Operation Funds.

⁴⁴Includes \$1,837,337 Code 711 funds and \$287,843 Accelerated Public Works funds. Excludes \$62,800 contributed funds.

⁴⁵Includes \$267,634 special recreation use fee funds, \$215,000 provided from the Productive Employment Appropriations Act of 1983, and \$144,562 Maintenance and Operations Funds.

⁴⁶Includes \$8,064 Code 711 funds and \$30,000 Public Works Acceleration funds. excludes \$575,000 contributed funds.

⁴⁷Excludes \$6,392,602 cumulative contributed funds.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Table 25-B		Authorizing Legislation	
See In Text	DateSection Act	Authorizing Project and Work Authorized	Documents
2.	Aug 30, 1935	KANAWHA RIVER LOCKS AND DAMS, WV Construction of three locks and dams on the Kanawha River and one on the Ohio River.	H. Doc. 31, 73rd Cong., 1st Sess.
	Aug 15, 1985	Engineering and Design and Land Acquisition for Winfield Locks and Dam.	P. L. 88, 99th Cong., 1st Sess.
	Oct 12, 1996	Construction of 110' x 800' replacement lock to Replace 56' x 360' twin lock chambers at Marmet Locks and Dam.	P.L. 303, 104th Cong., (WRDA '96)
5.	Oct 23, 1962	ALUM CREEK LAKE, OH Construction of Flood Control Reservoir	H. Doc. 587, 87th Cong 2nd Sess.
		BEECH FORK LAKE, WV Construction of Flood Control Reservoir	H. Doc. 587, 87th Cong 2nd Sess.
7.	Jun 28, 1938	BLUESTONE LAKE, WV Construction of Flood Control Reservoir	H. Doc 91, 74th Cong 2nd Sess.
	Dec 22, 1944	Added Recreation; Deleted Power	P. L. 534, 78th Cong, 2nd Sess
	Oct 31, 1992	Added Authorization for Drift & Debris	P.L. 102-580, 102nd Cong (WRDA '92)
8.	Jun 28, 1938	BURNSVILLE LAKE, WV Construction of Flood Control Reservoir	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 534, 78th Cong., 2nd Sess.
9.	Jun 28, 1938	DEER CREEK LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong., 1st Sess.
		DELAWARE LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong., 1st Sess.
10.	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong., 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 534, 78th Cong., 2nd Sess.
11.	Jun 28, 1938	DEWEY LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong., 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 534, 78th Cong., 2nd Sess.
Table 25-B (Cont'd)		Authorizing Legislation	

HUNTINGTON, WV, DISTRICT

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
12.	Jun 28, 1938	DILLON LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm., Doc 1, 75th Cong., 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 534, 78th Cong., 2nd Sess.
13.	Jun. 28, 1938	EAST LYNN LAKE, WV Construction of Flood Control Reservoir.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
	Dec. 22, 1944	Added Recreation.	P.L. 534, 78th Cong., 2nd Sess.
14.	Jun. 28, 1938	FISHTRAP LAKE, KY Construction of Flood Control Reservoir.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
	Dec. 22, 1944	Added Recreation.	P.L. 534, 78th Cong., 2nd Sess.
15.	Jul. 14, 1960	GRAYSON LAKE, KY Construction of Flood Control Reservoir.	H. Doc. 440, 86th Cong., 2nd Sess.
16.	Jun. 28, 1938	JOHN W. FLANNAGAN DAM AND RESERVOIR, VA Construction of Flood Control Reservoir.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
	Dec. 22, 1944	Added Recreation.	P.L. 534, 78th Cong., 2nd Sess.
17.	Oct. 1, 1980	LEVISA AND TUG FORKS OF THE BIG SANDY RIVER, AND CUMBERLAND RIVER, KY, WV Construction of such Flood Control Measures as deemed Necessary and Advisable.	Sect. 202, P.L. 367, 96th Cong., 2nd Sess.
18.	Jun. 28, 1938	MASSILLON, OHIO Construction of Channel Improvement Project.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.

Table 25-B (Cont'd)

Authorizing Legislation

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
19.		MUSKINGUM RIVER LAKES, OH	
	Feb. 20, 1934	Construction of 14 Flood Control Reservoirs.	Public Works Admin.
	Jun. 28, 1938	Reimbursement to the Muskingum Conservancy District a sum not to exceed actual expenditures for project construction.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
	Aug. 11, 1939	Operations and Maintenance assigned to the Corps of Engineers.	P.L. 396, 76th Cong., 1st Sess.
20.		NEWARK, OHIO	
	Jun. 28, 1938	Construction of Channel Improvement Project.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
	Aug. 13, 1968	Modification to Existing Project and Additional Channel Improvement and Drainage Facilities.	H. Doc. 337, 90th Cong., 2nd Sess.
21.		NORTH BRANCH OF KOKOSING RIVER LAKE, OH	
	Oct. 23, 1962	Construction of Flood Control Reservoir.	H. Doc. 220, 87th Cong., 2nd Sess.
22.		NORTH FORK OF POUND RIVER LAKE, VA	
	Jul. 14, 1960	Construction of Flood Control Reservoir.	H. Doc. 645, 86th Cong., 2nd Sess.
24.		PAINT CREEK LAKE, OH	
	Jun. 28, 1938	Construction of Flood Control Reservoir.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
	Dec. 22, 1944	Added Recreation	P.L. 534, 78th Cong., 2nd Sess.
25.		PAINTSVILLE LAKE, KY	
	Oct. 27, 1965	Construction of Flood Control Reservoir.	H. Doc. 246, 89th Cong., 1st Sess.
26.		R. D. BAILEY LAKE, WV	
	Oct. 23, 1962	Construction of Flood Control Reservoir.	H. Doc. 569, 87th Cong., 2nd Sess.
27.		ROSEVILLE, OH	
	Jun. 28, 1938	Construction of Channel Improvement Project.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
28.		SOUTHERN & EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE	
	Oct 12, 1996	Design and Construction Assistance for Environmental Infrastructure	P. L. 104-303 (WRDA 96) as amended by P.L. 106- 53 (WRDA 99)

Table 25-B (Cont'd)

Authorizing Legislation

HUNTINGTON, WV, DISTRICT

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
		SOUTHERN WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE	
29.	Oct 31, 1992	Design and Construction Assistance for Environmental Infrastructure	P. L. 102-580 (WRDA '92)
		SUMMERSVILLE LAKE, WV	
30.	Jun. 28, 1938	Construction of Flood Control Reservoir.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
	Dec. 22, 1944	Added Recreation	P.L. 534, 78th Cong., 2nd Sess.
		SUTTON LAKE, WV	
31.	Jun. 28, 1938	Construction of Flood Control Reservoir.	Flood Control Comm. Doc. 1, 75th Cong., 1st Sess.
	Dec. 22, 1944	Added Recreation	P.L. 534, 78th Cong., 2nd Sess.
		TOM JENKINS DAM, OH	
32.	Dec. 22, 1944	Construction of Flood Control Reservoir.	H. Doc. 762, 78th Cong., 2nd Sess.
		WEST COLUMBUS, OH	
33.	Nov. 17, 1986	Construction of Local Protection Project.	P.L. 662, 99th Congr.
		YATESVILLE LAKE, KY	
34.	Oct. 27, 1965	Construction of Flood Control Reservoir.	H. Doc. 246, 89th Cong., 2nd Sess.
		INSPECTIONS OF COMPLETED FLOOD CONTROL PROJECTS	
35.	Jun. 22, 1936	Inspection of Local Maintenance of Federally Constructed Local Protection Projects.	P.L. 738, 74th Cong., 1st Sess.

Table 25-C **Other Authorized Navigation Projects**
For Last

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Project	Full Report See Annual Report For	Construction	Operation and Maintenance	Contributed Funds Expended
Big Sandy River, WV and KY including Levisa and Tug Forks ²	1952	1,586,236	1,569,811 ¹	131,473
Elk River, WV ³	1903	30,259		
Gauley River, WV ⁴	1903	14,761		
Guyandotte River, WV ⁵	1915	27,500		
Little Kanawha River, WV ⁶	1960	470,536	1,023,854	
Muskingum River, OH ⁷	1955	301,912	6,171,897	6,041
New River, WV and VA ⁵	1899	109,691		
Scioto River at Portsmouth, OH ⁸	1953	10,951	16,593	

¹In addition, \$140,068 expended from funds transferred from Department of Commerce, Under accelerated public works program, for repairs of eroded bank at Lock 3 on Big Sandy River, at Louisa, KY.

²Operations and maintenance suspended June 30, 1952.

³Work closed September 1902. Property transferred to Kanawha River improvements.

⁴Work closed September 1902. Abandonment recommended in H. Doc 467, 69th Congress.

⁵Work suspended.

⁶Operation and maintenance suspended June 30, 1951.

⁷Collections from licensed non-Federal hydroelectric utilities for use of dams on Muskingum River for fiscal years 1923-1953 were \$79,154.

⁸P.L. 954, August 31, 1954, authorized Secretary of Treasury to pay Portsmouth Sand and Gravel Co. \$75,000 in full settlement of claims against government for damages resulting from change in Scioto River Channel.

Table 25-E

Other Authorized Flood Control Projects

For Last

HUNTINGTON, WV, DISTRICT

Project	Full Report See Annual Report For	Construction	Operation and Maintenance	Contributed Funds Expended
Completed Local Protection Projects				
Ashland, KY	1954	3,718,839	---	---
Athens, OH	1979	5,313,700	---	---
Cattletsburg, KY	1963	3,854,361	---	---
Ceredo-Kenova, WV	1955	2,753,551	---	---
Chillicothe, OH	1986	20,373,314	---	---
East Rainelle, WV	1962	614,598	---	---
Galax, VA	1953	480,536	---	---
Huntington, WV	1956	7,172,840	---	---
Ironton, OH	1952	2,604,646	---	---
Maysville, KY	1959	6,493,747	---	---
Parkersburg, WV	1955	6,652,827	---	---
Pt. Pleasant, WV	1955	2,919,578	---	---
Portsmouth-New Boston, OH	1956	9,806,424	---	---
Princeton, WV	1962	808,750	---	---
Russell, KY	1953	552,493	---	---
Williamson, WV	1964	1,056,166	---	---
Inactive Local Protection Projects				
Augusta, KY	---	11,577	---	---
Coal River, WV	1979	472,229	---	---
Vanceburg, KY	---	---	---	---
Deferred Local Protection Projects				
Newark, OH (Interior Drainage)	1983	---	---	---
Oceana, WV	1981	611,000	---	---
Inactive Reservoirs and Lakes				
Haysi, VA	---	2,656	---	---
Deferred Reservoir and Lakes				
Kehoe Lake, KY	1981	1,272,740	---	---
Active Authorized Projects with no current year expenditures.				
Martin, KY	1983	212,048	---	---

Table 25-G

Deauthorized Projects

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

All projects listed in this table have been deauthorized in accordance with Section 12 of the Water Resources Development Act of 1974, P.L. 251, 93rd Congress.

Projects	For Last Full Report See Annual Report For	Date	Federal Funds Expended	Contributed Funds Expended
Local Protection Projects				
Aberdeen, OH	---	May 1981	1,334	---
Athalia, OH	---	Aug 1977	---	---
Belpre, OH	---	Nov 1977	---	---
Brooklyn, WV	---	Nov 1979	---	---
Buena Vista, OH	---	Aug 1977	---	---
Chambersburg, OH	---	Nov 1986	---	---
Cheshire, OH	---	Nov 1977	---	---
Chilo, OH	---	Aug 1977	---	---
Clifton, WV	---	Aug 1977	11,237	---
Coal Grove, OH	---	Jan 1990	3,389	---
Columbus, OH	---	Aug 1977	---	---
Dover, KY	---	Jan 1990	---	---
Friendly, WV	---	Aug 1977	---	---
Fullerton, KY	---	Jan 1990	---	---
Gallipolis, OH	---	Aug 1977	---	---
Greenup, KY	---	Jan 1990	4,962	---
Hanging Rock, OH	---	Aug 1977	---	---
Hartford, WV	---	Aug 1977	---	---
Henderson, WV	---	Aug 1977	---	---
Higginsport, OH	---	Oct 1978	---	---
Hockingport, OH	---	Aug 1977	---	---
Letart, WV	---	Aug 1977	---	---
Letart Falls, OH	---	Aug 1977	---	---
Lower Guyandotte River Basin, WV	---	Nov 1986	17,721	---
Manchester, OH	---	May 1981	---	---
Mapleshade, OH	---	Oct 1978	---	---
Marietta, OH	---	Nov 1981	---	---
Mason, WV	---	Aug 1977	---	---
Middleport, OH	---	May 1981	9,783	---
Miller, OH	---	Aug 1977	---	---
Millwood, WV	---	Aug 1977	---	---
New Martinsville, WV	---	Nov 1979	---	---
New Matamoras, OH	---	Aug 1977	---	---
Newport, OH	---	Aug 1977	---	---
Normal, KY	---	Jan 1990	---	---
Pomeroy, OH	---	Aug 1977	---	---
Portland, OH	---	Aug 1977	---	---
Proctorville, OH	---	Nov 1986	---	---
Racine, OH	---	Aug 1977	---	---
Ripley, OH	---	Oct 1978	7,523	---
Riverview, WV	---	Aug 1977	---	---
St. Mary's WV	---	Aug 1977	---	---
Sardis, OH	---	Aug 1977	---	---
Sciotoville, OH	---	Aug 1977	---	---
Sistersville, OH	---	Aug 1977	---	---
South Point, OH	---	Nov 1986	---	---
South Portsmouth, KY	---	Jan 1990	---	---
Syracuse, OH	---	Aug 1977	---	---
Waverly, WV	---	Aug 1977	---	---
Williamstown, WV	---	Nov 1979	---	---
Zanesville, OH	---	May 1981	---	---
Table 25-G (Cont'd)		Deauthorized Projects		

HUNTINGTON, WV, DISTRICT

All projects listed in this table have been deauthorized in accordance with Section 12 of the Water Resources Development Act of 1974, P.L. 251, 93rd Congress.

Local Protection Projects	For Last Full Report See Annual Report For	Date	Federal Funds Expended	Contributed Funds Expended
Reservoirs and Lakes				
Big Bend, WV	---	Aug 1977	---	---
Big Darby, OH	1969	Nov 1979	3,349,568	---
Birch, WV	---	Nov 1986	---	---
Fazeysburg, OH	---	May 1981	5,000	---
Kehoe Lake KY	---	July 1992	1,273,000	---
Leading Creek, WV	1974	Jan 1990	272,880	---
Logan, OH	---	Oct 1985	---	---
Millersburg, OH	---	May 1981	---	---
Mill Creek, OH	1981	Nov 1981	1,602,702	---
Moore's Ferry, VA	---	Nov 1986	22,879	---
Mud River, WV	---	Nov 1979	---	---
Panther Creek, WV	1976	Nov 1986	---	---
Poca, WV	---	May 1981	---	---
Rocky Fork, OH	1950	Aug 1977	91,321	---
Salt Creek, OH	1975	Nov 1986	1,089,943	---
Utica, OH	1975	Jan 1990	757,550	---
West Fork, WV	1974	Jan 1990	663,192	---
White Oak Creek, OH	---	Nov 1981	---	---

Table 25-H

Inspection of Flood Control Projects (See Sec 33 of Text)

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

Flood Control Works Inspected	Dates of Inspection
Ashland, KY	NOV 01
Athens, OH	NOT INSPECTED
Berwind, WV	DEC 01
Bramwell, WV	OCT 01
Cairo, WV	OCT 01
Canton (Nimishillen), OH	AUG 01
Catlettsburg, KY	MAY 01
Ceredo-Kenova, WV	MAY 01
Chillicothe, OH	NOT INSPECTED
East Rainelle, WV	MAY 01
Fishing Creek, Pine Grove, WV	OCT 01
Fourpole Creek, Huntington, WV	NOT INSPECTED
Galax, VA	OCT 01
Grahn, KY	NOT INSPECTED
Griffithsville-Yawkey, WV	REMOVED FROM PROGRAM
Hargus Creek, Circleville, OH	NOT INSPECTED
Hitchins, KY	REMOVED FROM PROGRAM
Huntington, WV	JUN 01
Inez, KY	DEC 01
Ironton, OH	OCT 01
Jacksonburg, Fishing Creek, WV	OCT 01
Massillon, OH	DEC 01
Matewan, WV	JUN 01
Maysville, KY	DEC 01
Montcalm, WV	OCT 01
Mount Vernon, OH	AUG 01
Newark, OH	DEC 01
Olive Hill, KY	JAN 01
Paint Creek at Chillicothe, OH	NOV 01
Paint Creek at Washington Court House, OH	NOT INSPECTED
Parkersburg, WV	MAY 01
Pax, WV	AUG 01
Point Pleasant, WV	APR 01
Portsmouth-New Boston, OH	MAY 01
Prestonsburg, KY	OCT 01
Princeton, WV	OCT 01
Richwood and Fenwick, WV	SEP 01
Right and Left Forks of Beaver Creek, KY	REMOVED FROM PROGRAM
Ripley, WV	OCT 01
Roseville, OH	DEC 01
Russell, KY	MAR 01
Smithfield, WV	OCT 01
South Williamson, KY	NOT INSPECTED
South Williamson (Hospital), KY	JUN 01
Spencer, WV	OCT 01
Utica, OH	AUG 01
West Columbus, OH	NOT INSPECTED
West Union, Middle Island, WV	OCT 01
West Williamson, WV	JUN 01
Williamson, WV	JUN 01